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ANNUAL REPORTS  
OF THE  
STATE BOARD OF HEALTH  
OF ILLINOIS,  
FOR THE YEARS ENDING 1889, 1890, 1891.

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WITH AN APPENDIX

CONTAINING

“ZYMOTIC DISEASES IN CHICAGO--1890-92.”

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SPRINGFIELD, ILL.:  
H. W. ROKKER, STATE PRINTER AND BINDER.  
1893.



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*Publications 54-50*



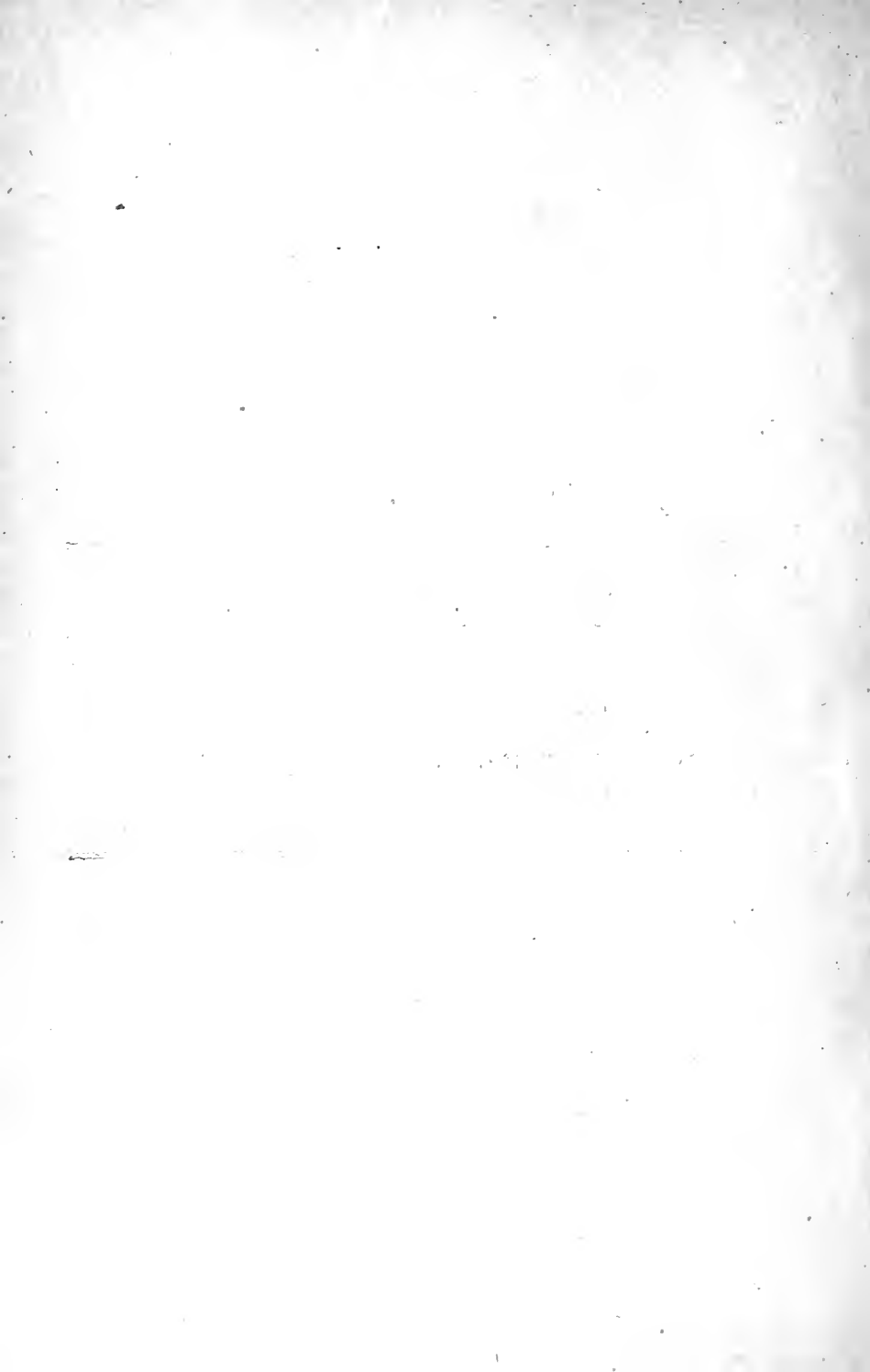
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**ABSTRACT OF PROCEEDINGS**

**OF THE**

**ILLINOIS STATE BOARD OF HEALTH, 1889.**

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## MEMBERS OF THE BOARD—1889.

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W. A. HASKELL, M. D., Alton, *President*.

NEWTON BATEMAN, LL. D., Galesburg.

R. LUDLAM, M. D., Chicago.

A. L. CLARK, M. D., Elgin, *Treasurer*.

W. R. MACKENZIE, M. D., Chester.

\*D. H. WILLIAMS, M. D., Chicago.

JOHN H. RAUCH, M. D., Chicago, *Secretary*.

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\* Appointed to succeed Dr. H. V. Ferrell, who resigned December 5, 1883.





ABSTRACT OF THE PROCEEDINGS  
OF THE  
ILLINOIS STATE BOARD OF HEALTH,  
AT THE  
MEETINGS DURING THE YEAR 1889.

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ANNUAL MEETING, SPRINGFIELD, JANUARY 11-12, 1889.

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The Twelfth Annual Meeting of the ILLINOIS STATE BOARD OF HEALTH was held in the rooms of the BOARD in the Capitol building, at Springfield, on Friday and Saturday, January 11-12, 1889.

Present: Drs. W. A. Haskell, A. L. Clark, R. Ludlam and John H. Rauch.

The BOARD was called to order at 2 P. M., on Friday, January 11th.

Dr. Haskell, President, in the chair.

After the roll call, the minutes of the last regular meeting held in Chicago October 25-26, 1888, were read and approved.

The accounts for the quarter ended December 31, 1888, were presented by the Secretary, and referred to the Auditing Committee. Both the afternoon and evening sessions were devoted to the consideration of routine business and cases coming under the Medical Practice Act.

At 11 P. M. the BOARD adjourned until Saturday.

SATURDAY, January 12th—The BOARD met at 10 A. M. pursuant to adjournment. Upon call for reports of officers, the Secretary presented the following:

#### QUARTERLY REPORT AND ANNUAL SUMMARY.

Notwithstanding the unusual meteorological conditions, characterized most notably by a temperature of from 5 to 8 degrees higher than the normal during the last two months of 1888, the public health of the State was remarkably good, at the close of the quarter.

Diphtheria prevailed in an epidemic form in Cambridge, Chicago and elsewhere in Cook county, Danville, Franklin Grove, Galesburg, Greenview, Marseilles, Moline, Mt. Olive, Rockford, Rossville and Oconee. From some of these places reports are received of "bad sanitary condition," "people ignorant as to health matters and willfully disregard instructions," "disease epidemic and unusually fatal, parents keep their children away from the schools." From the majority the reports are more satisfactory—"disease light and not much spread," "the circulars of the BOARD came very timely and have done much good," "instructions have been faithfully carried out and the epidemic is at an end."

Scarlet fever was reported at Benton, Champaign, Chester, Galesburg, Greenview, Marseilles, Nauvoo, Rossville, Thompson, Rockford and Shelbyville; the disease was generally mild and the mortality light.

Small-pox continued at Belleville longer than was anticipated, a fact due mainly to the want of a properly organized and efficient local board of health, in default of which the city depends too much upon the county authorities. The cases were mild and at the close of the quarter the State was practically free from the disease.

#### *Yellow Fever:*

It is a source of gratification that the predictions as to the course of the yellow-fever epidemic, based upon a study of the meteorology of the season and close observation of the conditions in the area infected and threatened, have been fully verified; and the approval by the BOARD of the refusal to sanction unnecessary, vexatious and costly quarantine restrictions has been entirely justified by the event. In this connection, I beg to call the attention of the BOARD to the announcement that, pursuant to a joint resolution adopted during the recent session of the Alabama legislature, Gov. Seay has addressed letters to the governors of Georgia, Texas, Mississippi, Louisiana, North Carolina, South Carolina, Tennessee, Kentucky, Florida and Illinois, requesting them to appoint delegates to a Southern Quarantine Conference to be held in Montgomery on March 5. The purpose of calling the Conference as announced is to establish an enlightened and effective quarantine.

On this point it may not be out of place to refer to the following editorial utterances of the London *Lancet*, published in its issue of December 15, ult.:

The yellow-fever epidemic of 1888 in Florida has called forth a number of comments which deal with the prevention of that disease and which are well worthy of consideration. One of these is contained in a report to the ILLINOIS STATE BOARD OF HEALTH by their secretary, Dr. John H. Rauch. In this report it is shown that, notwithstanding an attempt to conceal the several circumstances, yellow fever, which was modified by reason of temperature, had existed during the last winter in the territory between Tampa and Jacksonville, and that cases of "fever" were heard of in March, this year, which were held by some physicians not to be typhoid, as alleged, but to be part of a "yellow-fever wave," which was passing over Jacksonville. By April 20 the prevalence of the disease was admitted, and it was stated that several of the southern and western portions of the state were to be looked upon as suspicious. A belief is also current that the introduction of the disease took place through the port of Tampa in May, 1887, and that the gap in its history between that period and its reerudescence in the spring of 1888 was due to the policy of concealment and suppression of information by local health and quarantine authorities in Florida.

In the State of Illinois only one city was, according to Dr. Rauch's views, liable to danger. That was the city of Cairo, and a systematic observation of its meteorological and other conditions was at once instituted, and, on the basis of the results ascertained, Dr. Rauch undertook the responsibility for the action which in his official character he subsequently carried out. We do not know what is the particular cause of this disease, but there are certain points about its natural history which we do know, and one is that a continuous temperature of not less than 70 degrees F. is necessary to its maintenance and diffusion, and this even in the Gulf region of the United States. There is also, according to the evidence obtained by Dr. Rauch, no instance of its epidemic spread in places north of 35 degrees north latitude, unless indeed, to quote from Hirsch, "when the heat has equalled the mean annual temperature of the tropics; and it has on no occasion become diffused in a temperature below 68 degrees F., the winter temperature of the tropics."

Later on in the year the disease became much more prevalent: panic ensued, and with panic came its old associate, quarantine, the restrictions of which spread far and near. Illinois had to be protected, and by September the quarantine craze had spread even to Cairo, which city had not only quarantined Jacksonville but appealed to the STATE BOARD for financial and other help to maintain it. But Dr. Rauch was convinced that the premises on which he intended to base his action were correct, and that he was not justified in giving the authority of his BOARD in any shape or form to a quarantine which was unnecessary, and therefore without justification. Hence he immediately declined to authorize the enforcement of the system: and later on, when he brought the matter under the notice of his BOARD, they passed a resolution indorsing his attitude and approving his action "in exerting the authority of the BOARD for the abandonment of all quarantine restrictions in the State."

Quarantine, in nearly all its applications, is the result either of ignorance or neglect. It is resorted to by panic-stricken people, and it is distinctly injurious to the communities affected by it. In the case of this localized epidemic of yellow fever, restricted as it has been to the boundaries of one sparsely settled state, it is declared by Dr. Rauch to have brought about the loss of millions upon millions of dollars by paralyzing industries and embarrassing commerce, and to have led to cruel and vexatious interruption or suspension of travel by means of "shotgun" restrictions, with all their attendant "barbarities and high-handed outrages," and this at times a thousand miles away from any infected locality. The proceedings are indeed stated to have involved "the cold-blooded murder of travelers seeking to return to their homes." With such sequence of events in prospect, it is not to be wondered at that every effort was made in the early stages of the disease to keep all information away from those who had the power of imposing such restrictions; indeed, this secrecy, which is fatal to any proper attempt at prevention, characterizes nearly every quar-

antine system adopted, and generally alone suffices to frustrate the purpose which it is intended to effect. In the case of yellow fever outside the tropics, quarantine is especially useless; and yet in our own country, which professes to have abandoned such restriction, even in the case of a disease such as cholera (which occasionally assumes an epidemic form in the northern latitudes) we maintain an old and effete quarantine law, which professes to be administered by a department of state, for preventing the importation of yellow fever. Dr. Rauch's report may usefully be taken to heart by that department, for it is a story showing the utter uselessness of a system which, if carried out stringently, is properly referred to as "useless" and "inhuman," and the value of an official who, whilst he has the courage and honesty to forbid resort to quarantine, has also the knowledge necessary to give force to his recommendation that the prevention of yellow fever must essentially be sought in dealing with the presence of filth in the widest sanitary sense of the word.

I am compelled to dissent from the proposition that "in case of yellow fever outside of the tropics quarantine is especially useless;" and again to affirm my belief that in this country certainly, and in some other countries probably, in near and direct communication with the indigenous habitat of yellow fever, and where the climatic conditions have been demonstrated to be such as to favor the epidemic spread of yellow fever when introduced, a quarantine of exclusion is not alone not "useless" but its intelligent enforcement on the lines advocated by this BOARD is a national duty.

In Great Britain, however, to judge by the past, I think that the ordinary quarantine restrictions are unnecessary with regard to yellow fever. I also believe that if the proper sanitary precautions are taken in countries where the disease is indigenous, it might ultimately be eradicated and quarantine against it become unnecessary; but, as these conditions do not obtain in these countries at this time, I think quarantine restrictions are necessary in certain localities.

I would add that "the presence of filth in the widest sanitary sense of the word" threatens, unfortunately, to acquire increased importance from the remarkable deviations from the normal temperature which have now obtained for several months. It behooves health authorities everywhere to exert unusual diligence in securing the abatement of nuisances, the improvement of sanitary conditions, and the removal of every cause likely to lower the vital tone or to favor the development and spread of zymotic disease.

#### *Medical Education and Practice:*

In presenting the Fifth Report on Medical Education and Medical Colleges—the text of which is now ready for the printer—I desire to call attention to the substantial progress made in raising the standard of educational methods and requirements for the practice of medicine, as shown more particularly in the increasing number of colleges which now demand three courses of lectures as prerequisites for graduation. Nine colleges give notice in their announcements that after the sessions of 1889 and 1890 they will require three courses of lectures, and four announce that after the sessions of 1890-91, they will require four years of study, including three courses of lectures.

There is also a general lengthening of the lecture term which has, in fact, obtained from the beginning of the enforcement of the Schedule of Minimum Requirements of this BOARD, and more attention is also paid to clinical instruction. In short, there has been an improvement in these directions which the most sanguine could hardly have anticipated ten years since; and the acceptance with which the BOARD's further advance—to take effect after the sessions of 1890-91—has been met, conclusively proves that the step was well-advised, and the time fully ripe for action. It only needs that the BOARD should pursue the conservatively progressive course, inaugurated early in its existence and since steadfastly followed, to make four years' study and three courses of lectures as conditions of graduation, the rule, instead of the exception, among medical colleges.

With reference to medical practice in the State under the amended act, the most important practical feature is the substantial exclusion of the itinerant vendors of nostrums with circus and brass-band attachments. This fraudulent and harmful business, by which the State was formerly fleeced by non-residents out of hundreds of thousands of dollars every year, is now practically broken up. In the exercise of the discretion vested in it by the amended act the BOARD refuses licenses to these itinerants, and has already rejected the tender of fees for such licenses amounting to over \$20,000.

#### *Office Work and Miscellaneous:*

There were received in the Secretary's office for the three months ended December 31, 1888, 1081 written communications, exclusive of diplomas submitted for verification, and the affidavits, letters of recommendation, etc., pertaining to 58 applications for certificates entitling to practice medicine, and to 31 applications from midwives. There were sent out during the same period 907 communications of all kinds; 35 copies of Annual Reports; 5,700 copies of Reports of Proceedings of October, 1888, meeting; 20 copies of Official Register; 34 copies of Report on Medical Education; 3,035 copies of Preventable Disease Circulars; 20,700 vaccination certificates, and other miscellaneous publications of the BOARD.

For the year 1888, the correspondence of the Secretary's office embraced letters, etc., received and sent out, making a total of 13,086 written communications, an increase of 2,066 over 1887. Of the publications of the BOARD there were distributed during the year 191 copies of the Annual Reports; 94 copies of the Official Registers; 145 copies of the Report on Medical Education; 18,150 copies of Reports of Proceedings of Meetings; 6,207 copies of Preventable Disease Circulars; 33,400 vaccination certificates; 2,000 blanks for vital statistics with accompanying circulars of instruction; 10,000 House-to-House Inspection blanks, etc., etc.

#### *Medical Practice Act:*

There were issued during the quarter 58 certificates authorizing the practice of medicine in the State: 44 to graduates upon diplomas from medical colleges in good standing; 11 to graduates of other colleges who were required to supplement their diplomas by evidence of proficiency in the

subjects or branches omitted by their respective colleges (four of which number I examined); two upon years of practice; and one duplicate upon proof of destruction of original. Twelve applications were rejected because of inability to comply with the law. Certificates were also issued to 31 midwives; to 14 upon diplomas, licenses, or years of practice, and 17 upon examination; 6 were refused.

During the year, 405 certificates and 6 duplicate certificates authorizing the practice of medicine were issued,—a less number than for any single year since the existence of the BOARD. Diplomas presented by 46 graduates were required to be supplemented by examination or other evidence of the proficiency of the applicants, on branches or subjects omitted by the respective schools; 50 applications were refused owing to inability of the applicants to comply with the terms of the Medical Practice Act, or the rules of the BOARD based thereon. Of the 405 certificates issued, 375 were to graduates of medical colleges; 23 to practitioners of ten or more years practice in the State prior to July 1, 1877, and seven upon examination. Ten candidates failed to pass the examination.

To midwives during the year 96 certificates were issued; 51 being to licentiates and upon years of practice, and 45 upon examination. Thirteen applicants failed to pass the prescribed examination.

Since the organization of the BOARD in 1877, a total of 11,109 certificates have been issued, of which number 9,888 were to physicians and 1,221 to midwives. Of the former 8,432 were to graduates, 1,214 upon years of practice, and 242 upon examination; of the latter, 968 were to licentiates and upon years of practice and 253 upon examination.

#### *House-to-House Inspection :*

I take great pleasure in calling the attention of the BOARD to the report of the House-to-House Inspection made under the supervision of Dr. Foote, Health Commissioner of Galesburg. This is the fourth annual report made in that city in this way, and demonstrates the necessity and importance of so doing, annually. The report shows that 2,585 houses were examined, also the materials of which they are built, and the conditions of their basements and cellars. Nine hundred cesspools, 2,477 privies and 10 water-closets were examined. Of these, 18 cesspools and 577 privies were found to be in an unsanitary condition. There were found to be 14 hydrants, 2,073 cisterns and 2,359 wells. Five hundred and ninety-three nuisances other than are included under the above heads were found to exist. It shows the population to be 12,786—being 12,164 white and 622 colored—7,902 adults and 4,884 children. It also shows that of the 7,902 adults, 7,753 have been vaccinated, 133 revaccinated, and that 149 have not been vaccinated; that of the 4,884 children, 3,260 have been vaccinated, and that 1,624 have not been vaccinated. A report was likewise made in detail upon the sanitary condition of the public schools. These reports are a credit to the city of Galesburg.

A similar report is also received from the city of Ottawa. This work was inaugurated this year by the late lamented Dr. Ralph B. Ayer, a

most promising young sanitarian. Unfortunately for Ottawa and sanitary science he did not live to complete it. He had tried for the past three years to secure an appropriation from the Common Council, but did not succeed till the present year. The work of inspection was mainly done and report of the same made by Mr. P. A. Hall, and exhibits thoroughness and sanitary knowledge.

The report shows that 2,112 houses were examined, also the materials of which they were built, and the condition of their basements and cellars. Three hundred and forty-three cesspools, 1,968 privies and 76 water-closets were also examined. The yards of 1,988 houses were inspected. There were found 720 hydrants, of which the water supply was good; 9 cisterns with fair and 5 with good quality of water; 17 wells with good water, 1,197 fair quality, 120 bad—making a total of 1,334 wells examined. Nuisances not indicated under above headings, to the number of 107 were found. Of the nuisances discovered by the inspection, 588 were abated.

The population was found to be: Adults white, 8,243; children white, 3,826; colored adults, 36; colored children, 20. Total whites, 12,069; total colored, 56; total population, 12,125. Vaccinal status: Adults vaccinated, 5,852; revaccinated, 1,488; not vaccinated, 29; children vaccinated, 1,872; unvaccinated, 906.

The number of unvaccinated children both in Galesburg and Ottawa should serve as a warning to the people and authorities that no time should be lost in securing their safety and protection from small-pox. It would also do no harm for many of the adults to be revaccinated.

#### *Corporations:*

Eight years ago I called attention to the necessity for amending the "Act concerning Corporations," approved April 18, 1872. During the past year, a number of corporations have been organized the object of which is simply to use the authority of the State for the purpose of imposing upon the public. My attention has recently been called to this subject by a victim from a neighboring state. Practically six dollars will secure incorporation under the law as it now stands, no matter for what purpose.

#### *Water Supplies and Pollution of Streams:*

I regret exceedingly not to be able to present at least a preliminary report on the investigation of the water supplies and the pollution of streams. The ground covered is so extensive that it is necessary to study carefully the results, which frequently involves the necessity of investigating other matters connected therewith.

The field work was closed on the 15th of November, after having been carried on continuously during the previous six months. During this time 680 samples of water were examined, obtained from streams and other sources covering an area of about two thirds of the entire State. Owing to the mild weather the carrying out of the projected experiments on the effect of low temperature and the ice-cover of running streams in retarding the oxidation of organic matter was postponed. The knowledge which

these examinations will afford is necessary to the study of the problem of the sewage disposal of Chicago as affecting the comfort and health of communities in the valley of the Illinois river.

Water will be collected, commencing Monday, January 14, and weekly thereafter for eight weeks, between Chicago and the mouth of the Illinois river and on the Mississippi river, as follows: From the Illinois and Michigan canal at Bridgeport, at Lockport, and Joliet; from the Illinois river at Morris, LaSalle, Henry, Peoria, Pekin, Havana, Beardstown, Grafton, and from the Mississippi river at Alton.

The results of the investigation in other directions, particularly as touching the character of the water supplies of 33 cities, towns and villages, and of State and other public institutions, have been very instructive and will tend to the improvement of the character of the water supplied and greater care on the part of the authorities.

As it is important that the information collected should be given to the public at the earliest practical moment, I would ask authority from the BOARD to publish as soon as the work is completed.

Respectfully submitted,

JOHN H. RAUCH, M. D., *Secretary*.

On motion of Dr. Ludlam the Secretary's report was ordered printed in the proceedings of the BOARD. The recommendations made by the Secretary were concurred in, and authority was given to the Secretary to print 3,000 copies of the Report on Medical Education and Medical Practice, to cost \$517.00; also to make public the Preliminary Report on Water Supplies of Illinois and the Pollution of its Streams.

The Secretary laid before the BOARD the application of Dr. W. C. Brinkerhoff for license to practice. Dr. Brinkerhoff had been notified to appear before the BOARD, but was not present, and it was ordered that no action be taken at the present time, owing to the absence of the applicant.

A letter of notice of resignation, dated December 5, 1888, by H. V. Ferrell, of his position as member of the BOARD, was presented. On motion the resignation was accepted, and the Secretary was instructed to inform Dr. Ferrell, expressing the regrets of the BOARD at his retiring.

The annual election of officers of the BOARD resulted as follows:

DR. W. A. HASKELL, *President*.

DR. A. L. CLARK, *Treasurer*.

DR. JOHN H. RAUCH, *Secretary*.

DR. R. LUDLAM,  
HON. NEWTON BATEMAN. } *Auditing Committee*.



The Auditing Committee having examined the accounts for the quarter, amounting to \$4,830, reported them correct and recommended that they be paid. It was so ordered.

A resolution was read from the Massachusetts Medical Society in regard to the necessity of organizing a National Board of Health. The suggestions therein made were approved by the BOARD and the Secretary was directed to notify the congressional delegation from Illinois to that effect.

The Secretary was authorized to take such action as he thought proper, during the interval between the meetings of the BOARD, in the event of any contingency arising which might require urgent attention.

Adjourned.



## QUARTERLY MEETING, CHICAGO, MAY 23-24, 1889.

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THE BOARD met at 10 A. M., May 23, at the Grand Pacific hotel in the city of Chicago, the president, Dr. W. A. Haskell, in the chair.

The following members were present: Drs. W. A. Haskell, A. L. Clark, R. Ludlam, and the Secretary, Dr. John H. Rauch.

The minutes of the meeting of January 11 and 12, 1889, were read and approved.

Upon call for reports of officers, the Secretary read the following

### QUARTERLY REPORT.

So dependent upon conditions of weather and season are the various forms of illness and death, that it is well to note that the temperature for the quarter has been in excess, averaging 2 degrees to 5 degrees above the the daily normal, and the season ten to twenty days in advance. The rainfall, as reported by the signal service office, has been deficient. The quarter ended March 31st has been exceptionally free from extensive or fatal epidemics.

A case of varioloid has been reported from Jerseyville; the patient, a brakeman, was promptly isolated, the mayor and health officer instituted efficient measures of inspection, disinfection, vaccination and revaccination, so that no other cases have been reported. Small-pox has, however, been reported from Iowa, Kansas, Maine, Ohio, Pennsylvania, the Province of Quebec, and Minnesota.

Scarlet fever has been reported at Delavan, Ewing, Fairbury—a correspondent reporting sixteen cases and three centres of infection—at Lexington, where cases occurred from time to time during the winter, so that upon request I made a personal visit, conferring with the President of the village Board of Trustees and others; at Hanover, Hinsdale, Macon, McLeansboro, Morris, Morton, Petersburg and Samoth.

Diphtheria of violent type was reported in Annawan township, Chenoa, Decatur, Forreston, Hinsdale, Nokomis, Swedonia, Mulberry Grove and Staunton.

Cases of measles have been reported at Augusta, Danville, Morton, Warsaw, New Salem and Petersburg.

In connection with notices or reports of these cases, letters of instruction or advice, blanks and Preventable-Disease Circulars have been asked for and furnished.

Replies have been given to a number of inquiries upon sanitary subjects such as the location of wells as affected by proximity to cemeteries; the forms of certificates for undertakers; best materials for street pavements; how to disinfect and best disinfectants, nuisances of glue works, of distilleries and pollution of streams.

#### *Typhoid Fever:*

Typhoid fever prevailed to a considerable extent in Lake View during January and February. The conditions of the season were unusual. Extensive public improvements which had been undertaken were more or less incomplete and made it difficult to maintain the usual sanitary condition, either general or domestic. It is possible also that pollution of the water supply contributed to the rate of sickness. Cases of typhoid fever were also reported at Reddick, Kankakee county.

At the quarterly meeting held in June of last year, the attention of the BOARD was called to the occurrence of an outbreak, in February and March, of typhoid fever at Concordia College, Springfield, resulting in nine deaths in forty-five cases, and the closing of the college. I am obliged to report that again in February and March of this present quarter, there was another epidemic of typhoid fever at the college, causing a falling off in attendance of over two-thirds the illness of 24 and death of two students. In May, 1888, the BOARD caused the sanitary condition of the premises to be examined by an expert and the attention of the authorities was called to the defects then discovered.

Immediately upon learning of this latter outbreak, I directed Dr. Starkweather to make an inspection, which he did on February 22d. The following are extracts from his report:

"The main building is a three-story brick with stone basement, occupied partly by dormitories, by sitting and study rooms, wash rooms and dining room and kitchen; ventilation in lower story bad.

"There were thirteen small iron beds in one room in second story; in another, ten. On top floor in one room there were twelve beds; height of floor to ceiling in this room, nine feet. The floors of the rooms, halls and stairways needed to be scrubbed. New doors, thresholds and floors are much needed; saw no bath room. One room on second floor and one on third floor were used as a hospital; in one was a case said to be rheumatism; one of pneumonia. A formal inspection of the buildings is made every Saturday by a member of the faculty. The sink in the kitchen has no trap; ventilation poor; water to it is supplied through a one-inch tap from Springfield water works. On the west side of the basement are three wash rooms, heated. I could find no traps to any of the waste pipes and no vents; in one room the odor was strong and offensive; foul and cold air rushed up the waste pipe. If I am not mistaken this foul air comes directly from the main sewer in the street, and is one of the causes of illness in that building. The food supplies are obtained from Springfield. Three milch cows are kept, supplying part of the milk used. These cows

are probably given the well-water to drink. There are rope ladders on each floor, and a cistern at south end of the building, but the force pump to be used in time of fire, is out of order.

"The second building is a two-story frame, no cellar, and is used as a dormitory, contains fifty beds, wash room with stove in it; rooms warmed for study and recreation. One end of this building is within about twenty feet of the common privy; in the corner of the room nearest to this privy a student had been ill, and was to be sent to the hospital. The air of the dormitory was as cold as that of the outer atmosphere, 10 degrees above zero.

"The third building is devoted to study and recitation rooms, which are warmed.

"Reference to the books of the Springfield Water Works Company shows that there is only one service pipe to the college; it is of one and one-half inch diameter. This supply from the city is divided into three taps; one in the kitchen (one inch in diameter); one near the entrance to the basement and dining room; and in the privy for purpose of washing it out; there is a cistern near the hydrant, at end of basement hallway. There is an unused cistern for fire purposes. There are wells at the houses of members of the faculty, seldom used by the students. There is a surface-water well, made of brick, in the northwest corner of the grounds; it is near the present privy vault, and not more than ten feet from the sewer leading from the vault. There is an overflow from the well, six inch pipes with trap, to the twelve inch sewer leading from the privy vault. The ground lies very flat and low, dipping toward the well. The soil has become contaminated from fecal impregnation, due to there having been, for more than twenty years, a succession of common privy vaults in that (northwest) corner of the grounds, an area of 50x100 feet. The water used in the dining room is taken from this well. Samples of water from the kitchen hydrant and from the well near the privy vaults were obtained as directed, and sent to Chicago to the chemist of the BOARD, as well as to the biologist, for examination.

The privy vault is about 20 by 16 feet, its bottom was dug out and cemented. It is made of brick, arched and laid in cement; the interior of the vault was lined with sand, gravel and Portland cement; at the outlet a casting and cover was inserted, closing the cover; the vault was thoroughly tested before being used, and found to be water-tight. The vault is flushed out regularly and was being emptied out at the time of my visit. The drain or sewer leading from the vault, and so near the well which furnishes the main supply of drinking water, is made of "glazed crock," such as is used throughout the city for sewers, twelve inches in diameter, neck and joint, and laid in cement; work done by the day—not by contract. This lateral joins a 12-inch lateral from the kitchen and hydrant waste-pipe to form the main sewer, a 15-inch sewer running to the sewer in the street. There is no trap or man-hole in the main 15-inch sewer, and there is no cement or mortar work on this main sewer, leading to the street sewer. I saw no vents to any of the sewers; each lateral has a trap. So far as I can discover, it seems that a small branch sewer has been built from the basement sink-rooms in the main building to the 15-inch sewer, and is untrapped from street sewer to the different wash rooms in the basement, an obvious and serious sanitary defect. The waste-pipe from the sink in the kitchen has no trap in sight, but the 12-inch sewer into which it empties is said to have a trap. There are several common privies in the rear of the residences of the professors.

#### *Conclusions:*

1. There are ten cases of typhoid fever and two patients ill with symptoms of fever, the twelve being students of Concordia College.
2. The sanitary condition of the college is bad.
3. One of the causes of illness is the use of drinking water taken from the well near the dormitory and privy, made impure by fecal impregnation of the soil, which has been long in use for privy purposes.

*Recommendations:*

1. That another connection be made with the city water service, and hydrants be placed in each building and residence without delay.
2. That the water in the wells be made undrinkable for all time to come.
3. That the cistern and force pump for fire purposes be put in order, and necessary apparatus provided.
4. That the plumbing and sewer pipes be re-examined and put in good order.
5. That the bedding and clothing and rooms of those who have had typhoid fever be fumigated and disinfected; and that the privy vaults be thoroughly disinfected and flooded, daily.
6. That sewer connections be made with every building occupied by students or faculty.

Following are the results of Prof. Long's analyses of the Concordia water supplies and his comments thereon:

## CONCORDIA COLLEGE.

*New Well.*

Date, 1888.	Total Solids...	Suspended matter.....	Nitrogen in Nitrates.....	Chlorine.....	Hardness CaCO <sub>3</sub> .....	Free Ammonia	Alb. Ammonia.	Oxygen con- sumed.....	Physical Conditions.
1888.									
June 1	1596.4	6.5	9.450	102.66	102.00	.018	.186	15.840	Clear; odorless.....
June 15	1888.0	trace	22.680	111.156	132.00	.004	.092	4.840	" " .....
Sept. 4	1876.0	4.8	22.050	101.123	136.00	.008	.082	3.600	" " .....
1889.									
Feb. 22	1761.0	trace	19.530	145.140	.....	.045	.072	2.400	" " .....
Mean..	1780.3	2.8	18.427	115.019	123.33	.019	.108	6.670	

*Well in Professor's Yard.*

1888.									
Sept. 4	555.4	3.0	15.435	22.181	.384	.142	.104	2.160	Clear; odorless.....

*Well in Pasture.*

Sept. 4	629.4	14.3	18.900	21.240	.440	.548	.161	2.720	Clear; odorless.....
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*Old Well—Not Used.*

1888.									
June 15	698.4	trace	15.120	15.222	.665	.006	.028	1.440	Clear; odorless.....
Sept. 4	671.5	22.5	12.860	21.473	.568	.002	.055	1.120	Opalescent.....
Mean..	684.9	11.2	14.490	18.347	.616	.004	.041	1.280	

*New Well, Pump House.*

Date. 1888.	Total Solids...	Suspended mater.....	Nitrogen in Nitrates.....	Chlorine.....	Hardness CaCO <sub>3</sub> .....	Free Ammonia	Alb. Ammonia.	Oxygen con- sumed.....	Physical Conditions.
Sept. 13	377.4	24.8	trace	2.584	310	.454	.076	1.280	Yellow; turbid; odorless.....
Oct. 11	349.0	22.1	trace	5.310	280	.363	.093	2.320	Yellow; turbid; organic odor....
Mean..	363.2	23.4	.....	3.947	295	.408	.084	1.800	

*Hydrant.*

1889.									
Feb. 22	328.0	race	.00	4.956	.....	.219	.096	3.600	Clear; odorless.....

## COMMENTS.

"The four samples sent from the so-called new well—one much used for drinking purposes—show, by analysis, a large amount of dissolved solid matter, with abundance of nitrates and chlorides. The last three ammonia and oxidation tests do not indicate an excessive amount of organic matter. It is probable that this has been mostly decomposed by the soil.

"Water from three other wells in the immediate vicinity was examined. These are marked 'old well,' 'well in pasture,' and 'well in professor's yard,' and the tests here indicate a lower amount of solids, nitrates and chlorides. The free ammonia in the last two is high. It is interesting to note the change in the water of the 'new well' between June 1 and June 15. We have a marked decrease in oxidation and in albuminoid ammonia, with a corresponding increase in nitrates. The mineral matter taken up from the soil is also increased. I am inclined to believe that the nitrates in the other wells are in excess of what should be found in ordinary wells of that locality."

*Office Correspondence:*

There were received in the Secretary's office during the quarter 1,600 written communications of all kinds, and a total of 1,200 were sent out, not including diplomas and certificates to 132 physicians and 15 midwives. Of the publications of the BOARD, there were distributed 47 copies of the various Annual Reports and Official Registers, 1,510 copies of the Report on Medical Education, 4,301 of the Preventable-Disease Circulars, and 1,295 Vaccination Certificates and circulars.

There were sent to county clerks about 1,000 blanks for returns of vital statistics. Also a large number of blanks were sent to correspondents for material to assist in making the Preliminary Report on the Water Supplies of Illinois and the Pollution of its Streams.

*Medical Practice Act:*

There were issued during the quarter 135 certificates authorizing the practice of medicine in the State—132 of which were to graduates upon diplomas from medical colleges in good standing, 2 to non-graduates upon proof of ten or more years of practice in the State prior to July 1, 1877, and 1 upon satisfactory examination; 3 duplicates were also issued upon proof of the destruction of the originals. Certificates were issued to 15 midwives—7 upon diplomas or licenses, 1 upon years of practice, and 7 upon examination.

Of the 136 applications for medical practice certificates, 1 was refused on account of the applicant's inability to comply with the provisions of the law, and the requirements of the BOARD based thereon. There were also 5 applicants who presented diplomas from colleges which do not fully comply with the prescribed standard of study and instruction. Certificates were issued to these only after passing examinations in the neglected branches, or furnishing evidence of the necessary proficiency in the omitted qualifications.

The Report on Medical Education, Medical Colleges and the Regulation of the Practice of Medicine in the United States and Canada, 1765-1889, has been printed during the quarter and distributed. Its appearance has awakened renewed interest in the Medical-Practice Act, especially upon the part of the medical faculty, as partly shown by increase of correspondence. A secretary of a medical college has written to inquire as to the legality of dating diplomas by another medical college; another asks whether this BOARD would accept diplomas granted upon a term of five months or twenty weeks, each year for three years; another, whether two lectures a week upon chemistry and no laboratory course would come within the requirements of this BOARD; another, as to the competency of a college of midwifery to issue diplomas.

Upon a formal petition to suspend temporarily the practicing of two licentiates of the BOARD because of the long train of puerperal cases among their patrons, two midwives were required to desist from practice for three months.

A number of letters have been received making inquiries into details of the practical working of the Medical-Practice Act by those attempting to secure similar legislative action in their own states, or increased and more liberal authority and support to Boards already existing.

The Iowa State Board of Medical Examiners has adopted a resolution requiring after the sessions of 1890-91, that colleges in good standing demand four years of professional study, including any time spent with a preceptor, and three regular courses of lectures, of not less than six months each, as conditions of graduation.

The legislature of the State of Tennessee has passed an act regulating the practice of medicine.



*Yellow-fever Quarantine Conference:*

At the request of the Governor of Illinois, in response to an invitation from Governor Seay of Alabama, the Secretary attended a quarantine conference at Montgomery, Ala., on March 5, 6 and 7. The delegates from Illinois were Drs. B. M. Griffith, John H. Rauch and R. E. Starkweather. The business transacted by the conference is published in full in "The Proceedings of the Quarantine Conference, held in Montgomery, Alabama, March 5, 6 and 7, 1889."

Respectfully submitted,

JOHN H. RAUCH, M. D.,

*Secretary.*

On motion the report of the Secretary was ordered accepted and placed on file.

During the sessions of the BOARD and in an adjoining room an examination for license to practice under the Act to Regulate the Practice of Medicine was being conducted, at which the following applicants appeared:

Ernestine Brauns, Chicago, Illinois.

G. R. S. Burney, Chicago.

H. L. Kampen, Kirkwood.

Josephine F. S. Prentice, Chicago.

C. P. Stringfield, Chicago.

James P. Valby, Chicago.

Paul Zindler, Aurora.

Theodore Herold, Chicago.

Anna T. Snyder, Chicago.

Mrs. Snyder withdrew from the examination. James W. Gay, of Carman, Henderson county, Ill., sent by mail written replies to some printed questions which had been sent him as samples to show the manner of conducting an examination. He wrote that his time was so much occupied and patients so exacting in their demands that he could not absent himself from business to attend the examination. The BOARD decided it could not accept those answers in lieu of the examination proper.

The following preamble and resolution were offered and adopted:

WHEREAS, The investigation of the water supplies of the State and the pollution of its streams which is being made by the BOARD, through its Secretary, is the most important sanitary work now demanding attention and should be completed in the most thorough and exhaustive manner, to which end it is desirable that the Secretary personally inspect the systems of sewage disposal in vogue in Europe: therefore be it

*Resolved*, That the Secretary, Dr. John H. Rauch, be and he is hereby directed to visit such foreign cities and towns as, in his judgment, it may be profitable to inspect, and that for this special purpose he be granted a leave of absence for sixty (60) days from the home office, and upon his return report the results of his investigations to this BOARD.

Communications from Dr. E. L. Holmes, Secretary of Committee on Medical Education and Legislation of Rush Medical College of Chicago, dated Feb. 27th and March 15th, were laid before the BOARD, and the Secretary was directed to reply that the BOARD would recognize the Rush diploma "cum laude" granted upon attendance by the student of a term of five months or twenty weeks each year for three years; and to such students as have studied medicine a fourth year.

A communication from Dr. J. C. Hughes, dated Keokuk, Iowa, February 21, 1889, stating that the Faculty of the College of Physicians and Surgeons contemplated changing the present course of instruction in chemistry reducing the number of lectures per week one half, and abolishing the laboratory course entirely.

*Ordered*, That this BOARD regards the laboratory course of as much importance as the course of lectures on chemistry.

In the matter of the application of S. B. Hartman for a State certificate it was

*Ordered*, That the BOARD declines to grant a certificate for the reason that there was no evidence furnished with regard to the professional character of the applicant, as is required in all cases before a certificate is issued.

The Secretary referred to the BOARD for instructions the application of Pleasant T. Blackburn, of Iuka, James W. Dixon, of Hartsville, and Miles J. Kerley, of Grantsburg. He was directed to exercise his judgment as to issuing certificates to the applicants.

In the matter of Mrs. Sarah Deloss, of Braidwood, a petition and affidavit were presented by her attorneys, Messrs. Strawn and Patton, of Pontiac. The Secretary was directed to notify the applicant that no proper form of affidavit or application had been received, to send one to her and say that she would be given a hearing in the event of any objections appearing to the granting of a certificate.

Adjourned until Friday, May 24th, 10 o'clock A. M.

FRIDAY, MAY 24, 1889.

At Friday's session Drs. Haskell, Clark, Ludlam and Rauch were the members present.

Accounts and vouchers for the quarter, amounting to \$6,470.90, were examined, found correct and reported back by the Auditing Committee, Drs. Clark and Ludlam, with the recommendation that they be paid.

The subject of the recognition of schools of midwifery having been taken up for consideration, the BOARD adopted the following resolution:

*Resolved*, That by the authority of the Act to Regulate the Practice of Medicine in the State of Illinois, approved June 16, 1887, the following Schedule of Minimum Requirements for Schools of Midwifery be and hereby is adopted:

*Length of Regular Graduating Courses:*

I. The time occupied in the regular courses or sessions from which students are graduated shall amount to not less than six months.

II. Instruction must include the following branches of medical science: Anatomy of the pelvis and of the generative organs of women.

The signs of pregnancy.

The mechanism of labor.

The management of normal labor.

The management of abnormal labor.

Puerperal hygiene and antiseptics.

Special care of the mother and infant.

Dr. M. P. Kossakowski, President of the Esculapian College of Midwifery in Chicago, presented to the BOARD the question of the recognition of the graduates of his institution and offered affidavits by himself as President, and Dr. Marie T. Orglert, Secretary, that its course of instruction now consists of two sessions of three months each, and that all of the students of said college will be hereafter required to take the whole course of six months of instruction before receiving any diploma or certificate from said college. It was

*Ordered*, That the diplomas of said institution be recognized by this BOARD so long as it complies with the Schedule of Minimum Requirements for Schools of Midwifery adopted this day by the BOARD.

Adjourned.



## SEMI-ANNUAL MEETING, CHICAGO, JUNE 28-29, 1889.

The BOARD met June 28, at 2 P. M., at the Grand Pacific Hotel, Chicago.

The members present were Drs. Bateman, Clark, Haskell and D. H. Williams, of Chicago, successor to Dr. H. V. Ferrell, who resigned December 5, 1888.

The President, Dr. Haskell, in the chair.

In the absence of the Secretary, Dr. R. E. Starkweather read the

## QUARTERLY REPORT.

During the quarter ending June 30, the general health of the State has been undisturbed by disasters or the prevalence of epidemics of disease. The reports that have been received show few new features of interest.

Under date of April 6th, several cases of typhoid fever were reported at Jacksonville—twelve among the scholars of one school, seven of these being from the same school room. A few cases were also reported among those not connected with the schools. There was one death. The Secretary made a visit of inspection to Jacksonville, April 10th. It was found that one of the causes of the outbreak in the school was that there was no water in the trap of a four-inch sewer in the basement of the school building, through which the air shaft of the ventilator passed. Samples of water were collected from wells in the school yard and found to be impure. Following is the report of the analyses by Prof. J. H. Long, April 24, 1889:

## PARTS PER 1,000,000.

	Solids.....	Nitrogen in nitrites.....	Chlorine.....	Free ammonia...	Alb. ammonia...	Oxygen consumed..
Girls' well.....	751	11.970	48.144	.068	.186	2.080
Boys' well.....	705	20.160	33.030	.072	.158	1.780

Nitrites and chlorides are high.

A mild case of varioloid has been reported from Galesburg. Precautionary measures were taken and no notice of other cases occurring in that vicinity has been received.

A case of small-pox in Twigg township, Hamilton county, near McLeansboro, was reported June 6th. Many people were exposed to contagion from this patient, who, though in the early eruptive stage, appeared on trial in one of the courts. Vaccine points were sent to the physician reporting the case, ordered for him by telegraph. Preventable-Disease Circulars on Small-pox were also sent to be freely distributed. The city council of McLeansboro has taken the necessary sanitary precautions; a new board of health has been appointed, and general vaccination and revaccination enforced. Three new cases, however, have developed in the family of the first patient.

#### *Water Supplies of Illinois:*

The preliminary report made by the Secretary to the BOARD on the Water Supplies of Illinois and the Pollution of its Streams, with appendices by Prof. J. H. Long on Chemical Investigation of the Water and by L. E. Cooley, C. E., on the Hydrography of the Illinois River Basin, in its relations to sanitary engineering, has been issued. Two hundred copies of advance sheets were printed in March, and on April 3d, 2,500 copies were printed, of which 1,575 have been distributed.

#### *Office Correspondence:*

There were received in the Secretary's office during the quarter 1,318 written communications of all kinds and a total of 1,114 were sent out, not including diplomas and certificates to 141 physicians and 22 midwives; of the publications of this BOARD there were distributed 16 copies of the various annual reports and Official Register, 1,781 copies of the Ninth Annual Report, 460 copies of Report on Medical Education, 1889, 1,248 of the Preventable-Disease Circulars, 1,575 copies of the Preliminary Report on Water Supplies of Illinois and the Pollution of its streams.

#### *Medical Practice Act:*

The Supreme Court filed, June 15th, its opinion in the appeal from Clark county of the case *The People, for use of, etc. vs. "Blue Mountain Joe,"* in which the judgment of the Clark county court is reversed and the cause remanded to that court for further proceedings.

The position taken by the BOARD and its Secretary, under section 11 of the law of 1887 in regard to itinerants, is fully sustained and upheld by the court in this decision in the following words: "Not only do we think that the section of the Medical Practice Act under consideration was not unconstitutional, because the subject matter of it was not included within the title of the act, but the offered evidence clearly tended to show that the defendant had been guilty of violating its provisions."

This case has been energetically prosecuted, and the decision handed down by the Supreme Court with promptness and with great satisfaction to the BOARD and its officers. The argument, brief and transcript of record were forwarded to this office for filing, under cover of a letter

from the State's Attorney, Hon. Newton Tibbs, dated Nov. 13, 1888. The suit was an action of debt brought under section 11 of the Act to Regulate the Practice of Medicine, in force July 1, 1887, against "Blue Mountain Joe" of the Oregon Indian Medicine Company. "Blue Mountain Joe" was the agent of one of its many troops of itinerant venders of medicine and traveling doctors.

The action of the House Committee on Retrenchment of the last legislature in placing on file, without recommendation, a bill introduced for the repeal of this section eleven adds increased force to the position taken by the BOARD in regard to traveling doctors.

At a meeting of the BOARD in June, 1888, the Secretary said: "It is now one year since the new law went into effect, and nearly all who were required to take out certificates have done so. The effect of this law, especially with regard to itinerant showmen and mountebanks who sold medicines, has been marked and gratifying. The BOARD refused to grant licenses to this class, believing their business to be prejudicial to the interests of the people, and in so doing refused \$11,400 in license fees. During the month of June, 1887, there were 22 itinerant companies in the State whose sales daily amounted to about \$2,000. It is perfectly safe to assume that this law has saved the people of the State not less than \$250,000 during the past year."

With how much greater authority could these works be repeated at this time?

It is requested that the BOARD give explicit instructions in regard to the further management of the case against "Blue Mountain Joe," and the treatment of applications for licenses to itinerants.

#### *Certificates:*

There were issued during the quarter 141 certificates authorizing the practice of medicine in the State, 136 of which were to graduates upon diplomas from medical colleges in good standing, one to a non-graduate upon proof of ten or more years practice in the State prior to July 1, 1877, and two upon examination; two duplicates were also issued upon proof of the destruction of the originals. Certificates were issued to 22 midwives, 8 upon diplomas or licenses, one upon years of practice, and thirteen upon examination. Of the 136 applicants who presented diplomas from medical colleges, 12 were graduates of colleges which do not fully comply with the prescribed standard of study and instruction. Certificates were issued to these after passing examinations in the neglected branches, or furnishing evidence of the necessary proficiency in the omitted qualifications.

The straight-forward work, and high principles adopted by this BOARD encourage the Boards of other States to adopt like high standards of requirements for license to practice.

At Des Moines, Iowa, The State Board of Health decided, May 2d, to increase the standard of medical practice in Iowa; and after 1891, Iowa medical colleges will be required, it is reported, to give a four year's course to secure admission to practice of their graduates in that State.

*"Chicago College of Science:"*

The attention of the BOARD has frequently been called to the presentation of diplomas issued by institutions organized under the Act concerning Corporations, approved April 18, 1872. Recent enquiry by a correspondent as to the status of one of these corporations led to the discovery of a new and hitherto unknown medical college in Illinois—"The Chicago College of Science, Chicago and Chicago Lawn, Illinois, U. S. A."

Examination of the records in the office of the Secretary of State shows that the "Chicago College of Science" was incorporated July 5, 1888, and that the object is "to afford higher instruction in the sciences and in such kindred subjects as are necessary to the proper study of the 'sciences themselves.'" The incorporators, officers and faculty are obscure, generally unknown even to the city directory. One of the diplomas of this "College"—conferring the degree of Doctor of Medicine—was presented for endorsement to Dr. Austin Flint, of Bellevue, by whom it was brought to the notice of the Secretary.

*Chicago Correspondence University:*

The following letter, received by the Governor, was referred to the Secretary of the STATE BOARD OF HEALTH for reply:

*To the Governor of the State of Illinois:*

Will you kindly answer the following questions on enclosed postal by return mail? Is Correspondence University, of Chicago, Ill., legally authorized by the State of Illinois to confer degrees? Is it a university in good and regular standing, and are its degrees valuable? By answering promptly you will greatly oblige

—————, Hanson, Mass.

To the above the Secretary responded:

SPRINGFIELD, ILL., JUNE 6, 1889.

DEAR SIR:—Replying to yours of recent date, addressed to the Governor, I would say that "Correspondence University of Chicago" is legally authorized to confer degrees. It is not, however, a "university in good and regular standing," and its degrees are worthless. Shall be pleased to hear further from you.

Very respectfully,

[Signed.]

JOHN H. RAUCH, M. D.,

*Secretary.*

An examination of the records in the office of the Secretary of State shows that the "Correspondence University" was incorporated as an educational institution April 21, 1887, by E. W. Farnum, Alonzo L. Farnum and F. W. Haskins, and that its object, as stated, is "educating the youth through college courses, and conferring appropriate degrees." Six directors are to be chosen, two each year, after the first year. The names of the directors for the first year are given: H. Barton, George Goff, Moses Brown, Charles Kolbe, Sylvester Williams and Isaac Roberts. The Chicago directory does not contain the name of F. W. Haskins, but the other names appear as follows: E. W. Farnham, secretary, 78 Monroe; Alonzo L. Farnum, printer, 726 West Taylor street; Henry Burton, laborer, 337



Flournoy; George Goff, teamster, 98 Thirty-fifth street; Moses Brown, lawyer, 1269 Dearborn; Charles Kolb, book-keeper, 175 Madison; Sylvester Williams, stove repairer, 541 State street.

Such are the fruits of the Act Concerning Corporations in Illinois.

Respectfully submitted,

JOHN H. RAUCH, M. D.,

*Secretary.*

The Secretary's report was received. The accounts and vouchers for the quarter, amounting to \$2,468.31, were audited, approved and ordered paid.

It was ordered that the Secretary be instructed to communicate with the State's Attorney of Clark county, asking him to prosecute the case of the People vs. "Blue Mountain Joe," and to proceed at once with the case as suggested in the opinion of the Supreme Court filed June 15, 1889.

#### *Medical Practice Act:*

The BOARD made the following orders:

That notice be sent to Mathilde Herse, of Evansville, Randolph county, that under her license from the BOARD she has the right to practice midwifery only.

That John Cypress, of Marne, Madison county, be informed that the certificate he offers from the College of Midwifery and Lying-In Institution would, if accepted, allow only the license to practice midwifery.

That in the matter of the complaint of Dr. H. J. Stevens, of Luther, the Rev. E. A. Elfeld be notified to qualify under the act to regulate the practice of medicine if he wishes to practice.

After a brief session on Saturday morning, June 29, at which routine business only was transacted, the BOARD adjourned.



## QUARTERLY MEETING, CHICAGO, SEPTEMBER 27, 1889.

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The BOARD met at 10 A. M., September 27, 1889, in the city of Chicago.

Present: Drs. A. L. Clark, W. R. Mackenzie, W. A. Haskell, J. H. Rauch, D. H. Williams and R. Ludlam.

The minutes of the meeting of June 28-29, 1889, were read and approved.

Application for a license by Alfred G. Hopkins, of East Saginaw, Michigan, a graduate of the American Eclectic Medical College, Cincinnati, Ohio, was laid before the BOARD. Notice to that effect having been given to said applicant, the Secretary gave a brief history of the institution therein named, and some of the reasons for not considering the school in good standing under the requirements laid down by the BOARD in regard to medical colleges.

First: In 1877 the BOARD refused to recognize the diplomas of a Physio-Eclectic Medical College of Cincinnati, for the reason that all that had been presented for recognition had been bought. In a short time some of the parties who had presented diplomas of that Physio-Eclectic Medical College, presented diplomas from the American Eclectic Medical College, Cincinnati, Ohio, bearing the signatures of some of the so-called professors of the Physio-Eclectic Medical College of Cincinnati; and, for three years, in the reports on medical education issued by this BOARD, these facts were stated as the reason for non-recognition of the college, and no denial or protest was made to the BOARD. Other facts which came to the knowledge of the BOARD, with regard to this school, corroborated the opinion it had formed of the standing of the college.

Four years ago the present dean of the college appeared before the BOARD, stated that the school had been reorganized,

and made all sorts of promises to secure recognition of its diplomas. When the college announcement for that year was issued, it appeared to be all right, but examination as to the composition or membership of its faculty, showed that a man from Chicago, who was one of the members, was not even a graduate of medicine, but took the position as professor in order to sell electric apparatus, and was not engaged in the practice of medicine. It was afterwards found that he allowed himself to be appointed, hoping thereby to secure a leverage upon the BOARD, and thus obtain recognition of its diploma.

Soon afterwards Polk & Co., while preparing their U. S. Directory of Physicians, called the attention of the BOARD to a man and wife, living in Delaware, who had the diplomas of this school but were unable to explain satisfactorily how they obtained them.

When the dean discovered how the percentage of graduates to matriculates was calculated he changed the list he had sent in as correct, so as to make a better showing for the school.

About this time a member of the Illinois legislature brought for verification and recognition a diploma from the American Eclectic Medical College of Cincinnati, Ohio, in behalf of another applicant. The granting of a certificate to this applicant was under advisement, when unfortunately a certificate was issued to him by mistake. It was afterwards ascertained that this person was not a reputable character. In the next college announcement, the fact appeared that an honorary degree was conferred upon this member of the legislature, although he never had been engaged in the legitimate practice of medicine, but had been at work in the office of the Whittiers in Chicago, St. Louis and Cincinnati.

The same announcement contained the name of another notorious party in this State as a student and graduate. The dean of the school in explanation said the degree had been given him because he had secured the recognition by this BOARD of its diplomas. The Missouri State Board of Health refused to recognize its diplomas. The West Virginia Board of Health also refused to recognize them. Suit was brought in West Virginia against the holder of this diploma, and he was fined. He appealed to the Supreme Court of West Virginia, by whom the

fine was approved. This decision was taken to the Supreme Court of the United States, by whom the judgment was affirmed, and the decisions of other courts giving the BOARD the right to decide upon the standing of a medical college, whether it was good or not, were also affirmed.

After general discussion by the BOARD and examination of the papers of the applicant, it was

*Ordered*, That the application for certificate by Alfred G. Hopkins be refused. This BOARD does not consider the medical school mentioned in his affidavit in good standing; reasons for the same to be placed on record; fee to be returned.

Action of the Secretary was reported and confirmed in the matter of application for certificate by Wm. H. Betts, of New Orleans. The fee had been returned, as the letters of recommendation were not satisfactory, and the methods of practice were regarded as unprofessional and dishonorable.

The Secretary laid before the BOARD a communication dated August 30, 1889, from Mr. J. E. Quick, Detroit, Michigan, Secretary of the National Association of General Baggage Agents, enclosing a copy of rules approved January 16, 1889, and adopted by that Association July 17, 1889, for the transportation of dead bodies, a form of transit permit and undertaker's certificate, in which was requested the approval by the BOARD of the rules submitted, and asking assistance of the ILLINOIS STATE BOARD OF HEALTH in their enforcement. The Secretary was directed to notify Mr. Quick of the approval of the rules proposed, and of assistance in their enforcement.

Application for license to practice was presented of John Cypress, Marine, Madison county, a "graduate in obstetrics" of Newland's College of Midwifery and Lying-in Institute, of St. Louis, Missouri. The institution has the right in Missouri to issue to men its certificates to practice midwifery, but such right would not be recognized by the BOARD in this State.

*Ordered*, That the application of John Cypress for license to practice medicine or midwifery in this State be declined, and that his fee be returned; and

*Ordered*, That Newland's College of Midwifery be notified that this BOARD does not consider the college as being in good standing; and that the application of John Cypress, one of its graduates in obstetrics, for a certificate to practice has been declined.

The attention of the BOARD was called to letters from Dr. John Haig, of LeRoy, McLean county, setting forth the action of agents of the Oregon Indian Medicine Company, Dr. Oregon Charlie and Col. T. A. Edwards and others, in selling medicines, advertising in concerts and traveling from town to town. Instructions had been given Wm. H. Beaver, Esqr., to prosecute these itinerants, and suit is now pending. The action of the Secretary was approved.

The Secretary reported to the Board that he had made a visit to the mining settlement at Spring Valley, and had left twenty dollars with the mayor to be used for the sick in cases of emergencies. Many sensational statements had been made in regard to the condition of sickness, starvation and suffering of the miners. He had found that only such diseases as were incident to the season of the year in similar localities, were prevailing. There were several cases of diphtheria, and 720 school children not vaccinated. No communication had been made to this office by the township or county authorities who were charged with the duty of looking after the sanitary condition of the town.

It was the opinion of members of the BOARD that it should allow no one to suffer at Spring Valley for lack of medical attendance—that it should not ignore the condition of affairs there. The Secretary's suggestion of establishing a service for free vaccination was approved, and it was

*Ordered*, that the voucher for \$500 be allowed, and be expended in the prevention of epidemic diseases and of small-pox, said voucher to be presented to the Governor for approval, payable out of the contingent fund of 1888-1889.

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At the afternoon session, all the members being present, the Secretary read the following

#### QUARTERLY REPORT AND SUMMARY.

The public health was reported to be good generally. There had been no epidemics sufficient to cause wide-spread alarm. General sanitary work had been done by correspondence and by visits of inspection. Letters had been received asking for opinions and information, for suggestions of relief, for aid in abatement of unsanitary conditions of buildings on grounds threatening the safety or comfort of neighborhoods; letters inquiring as to the best locations for wells to secure safety from contamination; letters

of complaint against petroleum storage houses, glucose factories, and other noisome industries; letters from manufacturing establishments asking for proper sites for locating mills, requiring supplies of pure water; letters asking for inspection of water-cures and summer sanitariums.

*Office Correspondence:*

There were received in the secretary's office during the quarter 1,747 written communications of all kinds, and a total of 1,436 were sent out, not including diplomas and certificates to 122 physicians and 22 midwives.

Of the publications of the board there were distributed 459 copies of the ninth annual report, besides about 100 copies of the other annuals and the official registers of the board: 350 copies of the Report on Medical Education, 1889; 250 copies of the preliminary report on the water supplies of Illinois and the pollution of its streams, and the usual number of preventable-disease circulars, vaccination certificates and sanitary survey blanks.

*Medical Practice Act:*

There were issued during the quarter 123 certificates authorizing the practice of medicine in the state, 119 of which were to graduates upon diplomas from medical colleges in good standing, 1 to a non-graduate upon proof of ten or more years of practice in the state prior to July 1, 1877, and 1 upon examination; 3 duplicates were also issued upon proof of the destruction of the originals.

Certificates were issued to 22 midwives, 17 upon diplomas or licenses and 5 upon examination.

Of the 117 who presented diplomas from medical colleges, 3 were graduates of colleges which do not fully comply with the prescribed standard of study and instruction. Certificates were issued to these upon furnishing evidence of the necessary proficiency in the omitted qualifications.

In compliance with the instructions of the board, "Blue Mountain Joe" was prosecuted and fined \$100; another suit is pending.

Some applications for licenses have been received and correspondence had by those desiring to travel and sell medicines, but no licenses have been issued. Recently the city of Quincy has adopted an ordinance requiring a high license fee of all itinerant vendors.

*The Public Health:*

The case of small-pox in Twigg Township, Hamilton County, existing at the date of last report, was the cause of three (3) additional cases, the nature of the disease not having been promptly recognized; for this reason vaccination was delayed. All the patients recovered.

No other cases of small-pox have been reported during the quarter. Usual inter-state notifications of small-pox have been received from Iowa, Indiana, Minnesota, Tennessee and Wisconsin.

Diphtheria has been reported from Bryon, East St. Louis, Gibson (25 cases, 10 deaths), Spring Valley, Farmington, Paxton, Waverly, Springfield and Colchester.

Scarlet fever has been reported from Harvard, East St. Louis, Sibley and Seaton.

*Spring Valley:*

Owing to the statements in the public prints and by reason of other information my attention was called to the alleged great amount of sickness and suffering incident thereto among the miners of Spring Valley. Although no formal complaint by the local health authorities had been made, I visited that place Sept, 20: found six cases of diphtheria under treatment, and the ordinary diseases prevalent at this season of the year, in localities similarly situated. I recommended inspection and cleansing of the houses of the miners, and left a small sum of money to meet expenses not otherwise provided for. I think it important that the board exercise careful supervision over that locality so long as the present conditions obtain.

*Dysentery:*

The disease has been widely prevalent during the past four months, attacking hundreds of people in our townships and villages; deaths have been chiefly among children under five years of age, but the epidemic has not assumed such startling proportions, in extent or severity, as to threaten the general public safety.

Among other places, dysentery has been reported from New Canton, Nebo, Lick Creek, White Hall, Warsaw, Carthage, Hamilton, many townships and villages in Union, Scott, Pike, Macon, Macoupin, Morgan, Hancock and Greene.

Reports of epidemic dysentery prevailing also in other states have been numerous, sufficiently so to attract attention.

Epidemics at Warsaw and White Hall were serious and long protracted.

This office has been in communication with the Mayor of White Hall, and some of its medical men, to whom it is indebted for the following particulars: In the latter part of June patients fell ill with dysentery, and from that time forward there had been, to date of Aug. 7, not less than three hundred cases, of a moderate degree of severity, as a rule, though there have been thirty-six deaths reported, of which thirty-one decedents were of children, mostly three years of age or under; five deaths occurred subsequently and have been reported, making a total of forty deaths.

The causes of the epidemic are difficult to determine, but are due to excess of rain-fall and changes of temperature, partly miasmatic. A feature of the disease was its selection of localities. In an area of one-half of White Hall, containing one-third of its population of 1,800 people, there were but three deaths. Where the most sewers or sewer-crossings were, there it is said, was the most sickness. During the season there has been a large amount of rain, with very warm weather, accompanied by frequent sudden, cold changes, as stated by Dr. H. W. Chapman, and these variations of temperature have been one of the causes of sickness. "The tendency of medical observation (Buck's Hygiene, vol. I, p. 15) is to confine the cause of dysentery to the operation of one cause, a miasmatic



germ connected with animal or vegetable decomposition in the soil." It would be difficult to tell why dysentery is rarely prevalent in some districts very similar in natural conditions and social distinctions to other places in which, as in the case of White Hall, there are more or less severe and obstinate outbreaks of it. The city authorities and Board of Health placed White Hall in as good a sanitary condition as practicable, enforced cleanliness, and disinfection of premises, and did good work in allaying unnecessary panic.

Epidemic of dysentery at Warsaw. Cases of diarrhoea and dysentery began to appear the first week of July, increasing in number, severity, and fatality until about Aug. 10, when they declined rapidly until, near the end of August, but few convalescents remained, as reported by the Hon. H. I. M. Luedde, Mayor. Figures obtained by Dr. Starkweather at the time of his visit to Warsaw (Aug. 7-8) from four of its seven practicing physicians, show that in their practice there had been, to that date, a period of about three weeks, two hundred and twenty (220) cases. Total number of deaths from dysentery, from reports of all practitioners, had been 19 in the city, which contains a population of 4,000; 2 deaths were reported from the country, as there were then many cases of sickness in Wythe, Wilcox, and neighboring townships. Mortality was chiefly among children, 14 of the 19 decedents being under five years of age; it was estimated that 75 per cent of those who were sick were under five years of age; 20 per cent from five to twenty years of age. The City of Warsaw must be considered usually a very healthful one: all records or reports for the entire year of 1889 to Aug. 8 show only 38 deaths from all causes. As to the causes of this outbreak of dysentery, it is difficult at this time to say, in view of the imperfect history of its origin and extent. It may be, in part, miasmatic in origin. There had been a great deal of rain during the past summer and, as reported, an unusual amount for July of solar heat—hot days and cold nights, so that one of the physicians said that he had found it very comfortable to wear a winter overcoat at night. There had been considerable vegetable decomposition of the soil, which had been very rank in growth, the wet soil causing marked diurnal range of the temperature, and the direction of the wind had been this season, more than usually the case, in a southerly direction over the Mississippi River and extensive bottom lands. One of the physicians differed in this idea of the cause, but attributed the outbreak to a certain error in diet and contamination of the supply of milk.

The following table shows the precipitation in inches and hundredths, for the years 1887, 1888, and 1889, in the months of May, June, July, and August, by Mr. D. H. Cox, River Observer, at Warsaw:

MONTHS.	Years.		
	1887	1888	1889
May.....	0.08	2.04	6.05
June.....	1.02	1.06	8.00
July.....	5.01	1.08	8.07
August.....	1.08	0.07	2.40
Total.....	7.19	4.25	24.52

The following table will show, in degrees Fahrenheit, mean temperature of Keokuk, Iowa, a city located near to, and within view of Warsaw, during the months of May, June, July and August—for the years 1888 and 1889—taken by the United States Signal Service:

MONTHS.	Years.	
	1888	1889
May.....	58.0	60.7
June.....	70.3	75.0
July.....	75.7	74.4
August.....	70.8	73.2
Mean temperature.....	68.7	70.8

It will be seen that, at Warsaw, in the month of June, and July, of the present year, there were over sixteen inches of rain; in the same period, last year, there were only 2.14 inches.

The history of an epidemic at one place cannot demonstrate the general cause of dysentery nor can it be always explained why one place should have an epidemic and other places near it have none, but collection of items in reference to these epidemics will help to determine the value of the declaration made by Hirsch (Handbook of Geographical and Historical Pathology, Vol. III, p. 326), in speaking of the diffusion in temperate zones of epidemic dysentery or diarrhoea, that it depends essentially on the influence of climate, and is borne out by the connection that may be traced between the prevalence of these maladies and the season or weather. It is but just to say that some of the physicians in Warsaw were of directly diverse opinions as regards the effects of moisture, range of temperature and direction of the wind.

Warsaw was incorporated in 1859. It has a Board of Health, composed of the mayor, city clerk and three aldermen. Burial permits are not required, nor are returns of births, deaths or contagious diseases. The natural drainage is good, soil sandy, the site of the city is on high ground, its general appearance attractive and indicative of activity and prosperity.

On August 20, the mayor reported that a man had been appointed to make a thorough sanitary inspection, to see that circulars of instruction

as to care and disinfection of person and premises were left at every house and that it had been made his special duty to see that everything was properly disinfected where there were cases of dysentery.

*Chicago River and Sewage:*

Owing to the increased quantity of sewage that empties into the Chicago River, and the small amount removed by the Bridgeport pumps, the river, during the past season, was as offensive as at any time before the deep cut in the canal was made, and in fact in the history of the city. I cannot better state my views upon this subject than by quoting the following from a report made to the Board last April on water supplies and the pollution of streams:

It will be seen from the following pages that the opinions of the secretary, formulated more than ten years ago, concerning the essential sanitary interests of the communities in the Desplaines and Illinois Valleys, have undergone no material modification, but are substantially corroborated by these subsequent investigations and study. For the remedy of the nuisance, created by the drainage of Chicago into the Illinois and Michigan Canal and the Illinois River, it is demonstrated that the minimum quantity of water pumped at Bridgeport, heretofore recommended, is absolutely necessary. That quantity was fixed by the secretary in 1879 at 60,000 cubic feet per minute when the population draining into the river was less than 400,000.

Subsequently it has taken the form of a general statement—frequently repeated in reports to the BOARD—that the sanitary interests of the communities in the Desplaines and Illinois valleys demand that the sewage of Chicago pumped into the canal shall be diluted on the scale of 14,000 cubic feet per minute for every 100,000 inhabitants as a minimum. In winter, when oxidation is retarded by ice formation shutting out light and air, by low temperature, and by impeded motion, a greater rather than a lesser quantity should be pumped. The recent analyses fully sustain this dictum.

As a matter of fact, the average quantity pumped during the period covered by these investigations did not exceed 45,000 cubic feet during the summer of 1888, and not more than 38,000 cubic feet during the last winter. This quantity is less than one half the minimum dilution necessary to prevent nuisance at Joliet.

The city of Chicago should be required to increase the capacity of the pumping plant at Bridgeport to 100,000 cubic feet at once. With a comparatively small outlay—say \$10,000—the canal can be made to carry this quantity readily, although it is probable that one or two bridges would require to be raised somewhat.

For further relief pumps should be erected at some suitable point of discharge into the Desplaines River, and these should be of the capacity recommended in 1879, to-wit: 150,000 cubic feet per minute. If such discharge into the Desplaines be secured promptly then a lesser quantity may be pumped into the canal and the necessity of raising the bridges would be obviated. But with the sewage of over 800,000 inhabitants already tributary to the canal, the minimum dilution above specified requires at the present time that at least 112,000 cubic feet per minute be pumped into these channels. This quantity may readily be drawn through the south branch without creating too great a current; but it may be necessary to provide some other source of supply from Lake Michigan for the maximum quantity of 250,000 cubic feet, which will be required for the population before the close of the century on the most conservative estimate of growth.

Even if the project for a great waterway from Lake Michigan to the Illinois River were under way to-day, such additional pumping would be

needed before the work could be completed and made available for the relief of the communities in the lower valleys—a relief which is now imperatively demanded as a sanitary necessity.

The heavy rainfall of the 27th and 28th of July, over four inches, carried the accumulated sewage beyond the crib and polluted the water supply; and, if it had not been for the notice given to boil the water before using, and the remarkably low and equitable temperature that existed during the months of July and August, the influence of this pollution of water would have been much more marked upon life than it has been. It is a matter of vital importance, and a sanitary necessity that provisions should be made for pumping the amount of water alluded to heretofore with as little delay as possible. The conditions that obtain are a standing menace to the health of the people.

Respectfully submitted.

JOHN H. RAUCH, M. D.,

*Secretary.*

The Secretary announced the death of Dr. A. T. Darrah, of Bloomington, a former President of the State Medical Society, a steadfast advocate of the cause of higher medical education, and a man much interested in the work of this BOARD.

During the discussion upon the sanitary condition of the Chicago River and the Illinois and Michigan Canal, Dr. Richards, Commissioner of Health of Joliet, and Captain J. M. Leighton, Superintendent of the canal, were present, by invitation. Dr. Swayne Wickersham, Commissioner of Health of Chicago, was detained by illness. Dr. Richards said the present condition of the river at Joliet was very bad, almost unbearable; the whole valley was full of stench; windows of houses three-fourths of a mile from the river had to be closed. "It is an imposition upon civilization. There is very little typhoid fever in Joliet. The lake is filling up with sludge—and had to be dredged this year."

Dr. Rauch thought it might be well to use a precipitating basin to catch the slops—but there is very little organic matter in such deposit.

Captain Leighton reported eight pumps now in operation, pumping all they can use. The canal can take care of 80,000 cubic feet.

The Secretary said the BOARD was trying to obviate the evils complained of. If three inches of water falls in a day, it goes into Lake Michigan. It lowers vitality to allow such conditions of river or lake to remain. The city of Chicago makes its appropriations in January, and some attempt should be made to

bring this subject to the attention of the Common Council to secure action for relief of present condition of the river.

On motion of Dr. Bateman,

*Ordered*, That the Secretary draw up a memorial on the subject of excessive pollution of the river and Chicago water supply and the Illinois Canal by Chicago sewage, the injurious effect of the same, and necessity for relief therefrom to neighboring communities; praying for prompt action on the part of the Common Council of the City of Chicago to prevent further nuisance to the people, said memorial to be presented in person by a committee from this BOARD, to be hereafter appointed by its President for that purpose, to the Mayor and Common Council.

Under the regular order of business, consideration of cases under the Act to Regulate the Practice of Medicine was resumed and the case of Mrs. Sarah Deloss, of Peoria, was taken up.

Mr. George W. Patton, of Pontiac, appeared as attorney for Mrs. Deloss in an application made in 1889 for license to practice medicine, based upon affidavit of twenty-four years practice last past. All papers in connection with the case were submitted with the affidavit. It was shown that the blank used for affidavit had upon it notice that application must be accompanied by letters of recommendation as to moral and professional character and standing, from reputable medical men; the fee of five dollars had been paid to the BOARD. Mr. Patton said he could not find that the law requires furnishing of letters of recommendation from two or more reputable medical men. It is extra legal, and no letters had been sent as to professional ability. He argued that the presumption is her character is good until evidence is shown that she is guilty, incompetent or immoral. His client practices the botanical method, not in any particular place, though her home is in Peoria. Two physicians might not give recommendations, as she is not liked by them. She practices in Pontiac and neighboring towns.

Dr. Bateman replied that it is common in all colleges to require testimonials of character as a condition precedent to entering classes. The presumption of innocence does not prevail; notice should rather be taken of any inability to furnish letters. A circular purporting to be connected with the case of Mrs. Deloss, one on red paper another on white, was shown Mr. Patton. The Secretary, Dr. Rauch, said the BOARD had a legal right to revoke a certificate or refuse to issue one. Counsel was

informed the decision of the BOARD would be made known through its Secretary. and he withdrew. General discussion having been had upon the affidavit, application and the argument by Mr. Patton, it was, upon motion duly made, seconded and carried,

*Ordered*, that no certificate be issued to Mrs. Sarah Deloss because of lack of full compliance with the requirements of the BOARD.

It was ordered that the Quarterly Report made at this meeting by the Secretary be published in pamphlet form for immediate distribution.

On motion of Dr. Bateman, the President and Secretary of the BOARD were requested to attend and represent the BOARD at meetings of the American Public Health Association to be held at Brooklyn, New York, October 21-25 next.

During the afternoon session, the Auditing Committee was occupied in examining and approving accounts and returned vouchers to the amount of \$4,664.51, recommending that they be allowed and paid, and it was so ordered.

Adjourned.



FINANCIAL STATEMENT  
OF THE  
ILLINOIS STATE BOARD OF HEALTH,  
FOR THE  
FISCAL YEAR ENDING SEPTEMBER 30, 1889.

*State Board of Health—Dr.*

<i>To State Treasurer:</i>		
Balance of Regular Appropriations, October 1, 1888.....	\$9,236 73	
Balance of Contingent Fund, available October 1, 1888.....	38,833 38	
Regular Appropriations, taking effect July 1, 1889.....	9,000 00	
Contingent Fund taking effect July 1, 1889.....	10,000 00	
	<u>          </u>	\$67,070 11

*To Treasurer of Board:*

Balance on hand, October 1, 1888.....	\$555 59	
Office receipts—year ending September 30, 1889.....	2,840 00	
	<u>          </u>	3,395 59
		<u>          </u>
		\$70,465 70

*State Board of Health—Cr.*

By payment on all accounts, as per itemized statement.....	\$18,434 12	
Unexpended balance of Regular Appropriations lapsed into State Treasury, September 30, 1889.....	133 69	
Unexpended balance of Contingent Fund lapsed into State Treasury, September 30, 1889.....	33,745 62	
Unexpended balance of Regular Appropriations October 1, 1889.....	8,079 00	
Unexpended balance of Contingent Fund, October 1, 1889.....	10,000 00	
Unexpended balance in hands of Treasurer of the Board, October 1, 1889.....	82 27	
	<u>          </u>	70,465 70

ITEMIZED STATEMENT OF EXPENDITURES  
OF THE  
ILLINOIS STATE BOARD OF HEALTH,  
FOR THE  
FISCAL YEAR ENDED SEPTEMBER 30, 1889.

Salary of Secretary.....	\$3,375 00	
Assistant Secretary and clerical services.....	4,864 22	
Expenses of BOARD and Secretary, attending meetings and making sanitary investigations.....	1,570 56	
Printing Reports, Circulars, Returns, etc.....	1,320 69	
Chemical analysis of water and incident expenses.....	4,144 75	
Sanitary engineering.....	500 00	
Vaccine and vaccination at Spring Valley.....	426 26	
Sanitary inspection at Spring Valley.....	120 00	
Office furniture.....	162 48	
Postage.....	284 00	
Expressage.....	417 63	
Telegrams.....	104 95	
Telephone, rent and toll.....	48 25	
Livery.....	11 00	
Medical journals, books and newspapers.....	211 63	
Legal services and court costs.....	204 10	
Messenger and janitor.....	630 00	
Ice.....	16 50	
Laundry.....	12 00	
Sundries.....	10 10	
	<u>          </u>	\$18,434 12
Total expenditures from Regular Appropriations.....	\$10,633 04	
Total expenditures from Contingent Fund.....	5,087 76	
Total expenditures from Office receipts.....	3,313 32	
	<u>          </u>	\$18,434 12



REPORT OF THE TREASURER  
OF THE  
ILLINOIS STATE BOARD OF HEALTH,  
FOR THE  
FISCAL YEAR ENDED SEPTEMBER 30, 1889.

*To the President and Members of the Illinois State Board of Health:*

GENTLEMEN:—Your Treasurer begs leave to present the following report of the receipts and expenditures of his office for the period commencing with the date of his last Annual Report, October 1, 1888, and ending September 30, 1889:

*General Account, Dr.*

Balance to credit of general account September 30, 1888.....	\$555 59
Received of Dr. John H. Rauch, Secretary, office receipts for the fiscal year ended September, 1889.....	2,840 00
Total accountability.....	\$3,395 59

*General Account, Cr.*

Moneys paid out by order of the BOARD on vouchers duly audited, approved and on file for indebtedness accrued during the fiscal year ended September 30, 1889:

Expenses of investigation of utilization and purification of sewage and pollution of streams.....	\$680 97
Printing Report on Medical Education.....	619 15
Secretary's services and traveling expenses and Medical-Practice Act.....	572 13
Printing Report on Pollution of Water Supplies.....	501 19
Clerical services.....	177 55
Medical journals, books and periodicals.....	169 40
Legal services and expenses of suits.....	166 65
Sanitary engineer and chemist.....	137 67
Incidental office expenses.....	132 88
Office furniture.....	92 48
Miscellaneous printing—legal briefs.....	41 00
Sanitary inspection and vaccination, Spring Valley.....	22 25
Total expenditures.....	\$3,313 32
Balance in my hands September 30, 1889.....	82 27
	\$3,395 59

All of which is respectfully submitted,

A. L. CLARK, *Treasurer*.

Audited and approved:

W. R. MACKENZIE, }  
R. LUDLAM, } *Auditing Committee.*



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**ABSTRACT OF PROCEEDINGS**

**OF THE**

**ILLINOIS STATE BOARD OF HEALTH, 1890.**

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## MEMBERS AND OFFICERS OF THE BOARD—1890.

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W. A. HASKELL, M. D., Alton, *President*.

NEWTON BATEMAN, LL. D., Galesburg.

R. LUDLAM, M. D., Chicago.

A. L. CLARK, M. D., Elgin, *Treasurer*.

W. R. MACKENZIE, M. D., Chester.

D. H. WILLIAMS, M. D., Chicago.

B. M. GRIFFITH, M. D., Springfield.

JOHN H. RAUCH, M. D., Chicago, *Secretary*.



# ABSTRACT OF THE PROCEEDINGS

OF THE

# ILLINOIS STATE BOARD OF HEALTH

AT THE

MEETINGS DURING THE YEAR 1890.

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ANNUAL MEETING, SPRINGFIELD, JANUARY 30, 1890.

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The Thirteenth Annual Meeting of the ILLINOIS STATE BOARD OF HEALTH was appointed to be held at its office in the State House, Springfield, Thursday, January 30, 1890.

Assembling for business at that time and place, upon call of the roll of members, it was found that no quorum was present. Dr. R. Ludlam, of Chicago, temporarily in the chair, Dr. W. R. Mackenzie, of Chester, and Dr. D. H. Williams, of Chicago, were the only members present, together with the Secretary, Dr. Rauch.

It was stated that illness of some of the members, and pressure of professional duties incident to the prevailing epidemic of the so-called influenza, prevented attendance of other members.

The Secretary presented his Quarterly Report for the quarter ended December 31, 1889, and his Annual Summary for the year 1889, and permission was given to print the same without waiting to present it first at the regular meeting.

Upon motion of Dr. Mackenzie, duly seconded by Dr. Williams, it was ordered that the Annual Meeting stand adjourned to February 13, 1890.

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ADJOURNED SESSION OF THE ANNUAL MEETING,  
FEBRUARY 13, 1890.

The BOARD met at 10 o'clock A. M., at its office in the State House, pursuant to adjournment from January 30, 1890.

Upon call of roll, the following members were found to be present: Drs. A. L. Clark, R. Ludlam, D. H. Williams.

Dr. B. M. Griffith, of Springfield, was introduced and took his seat as a member of the BOARD, in succession to Dr. John H. Rauch, term of office expired, and who had declined a re-appointment as a member of the BOARD. Dr. Rauch was present as Secretary.

A quorum being present, Dr. Ludlam was called to preside in in the absence of the President.

The reading of the minutes of the meeting of September 27, 1889, of a memorandum of adjournment of Annual Meeting of January 30, 1890, and of the Secretary's report was deferred to the afternoon session.

Election of officers for the year was had, with the following result:

W. A. Haskell, M. D., Alton, President; A. L. Clark, M. D., Elgin, Treasurer; John H. Rauch, M. D., Chicago, Secretary; R. Ludlam, M. D., Chicago, and W. R. Mackenzie, M. D., Chester, Auditing Committee.

Bills and accounts for the quarter amounting to \$3,023.06 were presented. The Auditing Committee, to whom the vouchers were referred having examined the same and found them correct, recommended that they be paid, and it was so ordered.

Secretary was authorized to prepare and issue instructions in regard to transportation of bodies of the dead.

The BOARD took a recess until half past one o'clock in the afternoon, at which hour it assembled, the members present being Drs. Clark, Williams, Griffith, Haskell and the Secretary, Dr. Rauch—Dr. Haskell, President, in the chair.



Under call for reports from officers and committees the Quarterly Report of the Secretary for the quarter ended December 31, 1889, and the Annual Summary for the year 1890, were read and upon motion they were received and ordered printed. Following is a synopsis of the same:

*The Pandemic of so-called Influenza, to February 8th, 1890:*

First cases recognized were in St. Petersburg about middle of October—supposed to have taken its origin in Wassali-Ostrow, near and southwest of St. Petersburg, and in Kolomna, 65 miles southeast of Moscow.

Within three weeks one half the population of St. Petersburg was prostrate; by November 12th it had spread over the whole of European Russia. In Asia it was first noticed in Tomsk, Central Siberia, and appeared in the Caucasus about November 11th.

Thence it spread into Finland and Eastern Prussia and in the beginning of November invaded Berlin; thence to Vienna and Paris. By December 20th it was prevailing in nearly all the capitals and large cities of continental Europe. Introduced into England in December.

First recognized in Boston, December 17th; New York City, December 20; Chicago about December 23—first among the employés of the post-office.

Within 90 days it has extended from Atlantic to Pacific—and as far south as Mexico and Central America. In 1843 it consumed six months in spreading to and through this country, while the present epidemic has extended from St. Petersburg to the Pacific coast and Central America, within three months. "Is this due to increased facilities for communication and travel?"

It was supposed that the influenza took its origin from the dengue, which was epidemic in Constantinople and in Asia Minor and Southern Europe from June to November; and that, spreading northward, it changed in its type until it had assumed its present form. Cases of dengue have been reported within the last 60 days in the southern part of this State, and also at New Orleans.

The following tables have been prepared, showing the mean daily temperature and rain fall for the months of October, November and December at Chicago, Springfield and Cairo for the years 1880-89 and for January, 1890. These tables show an unusually high and unseasonable temperature, which has produced a general feeling of malaise, preparing or predisposing people to susceptibility to any epidemic influences.

Other tables showing the temperature, mortality, chief causes of death and the influence of the pandemic for Boston, New York, Philadelphia, Cleveland, Chicago, Baltimore, Washington, Cincinnati, and St. Louis.

TABLES OF MEAN DAILY TEMPERATURE, DEG. FAHR., AND RAINFALL IN INCHES AND HUNDREDTHS, FOR THE MONTHS OF OCTOBER, NOVEMBER AND DECEMBER, AT CHICAGO, SPRINGFIELD AND CAIRO, ILLINOIS, FOR THE YEARS 1880-89, AND FOR JANUARY, 1890.

## OCTOBER.

YEAR.	CHICAGO.		SPRINGFIELD.		CAIRO.	
	Rainfall.	Temp.	Rainfall.	Temp.	Rainfall.	Temp.
1880.....	3.09	51.3	2.04	53.6	6.96	57.7
1881.....	6.89	55.9	10.02	58.7	2.74	65.1
1882.....	3.40	56.5	3.76	58.9	2.37	64.7
1883.....	7.36	51.8	6.08	52.2	6.97	60.2
1884.....	3.59	56.4	2.74	59.7	1.89	63.3
1885.....	3.87	51.	6.30	52.9	2.82	55.9
1886.....	1.42	56.4	.80	57.9	.45	59.5
1887.....	2.03	47.3	.81	48.	.38	56.1
1888.....	2.85	49.4	3.1	48.4	3.24	53.6
1889.....	1.92	48.4	2.86	51.	2.81	56.6
Mean 1880-88, inclusive.....	3.84	52.7	4.02	54.3	3.11	59.5
1889, decrease.....	2.02	3.3	1.16	3.3	.30	2.9

## NOVEMBER.

YEAR.	CHICAGO.		SPRINGFIELD.		CAIRO.	
	Rainfall.	Temp.	Rainfall.	Temp.	Rainfall.	Temp.
1880.....	.87	31.6	1.60	32.7	3.98	37.2
1881.....	5.97	39.	6.93	42.	4.98	47.5
1882.....	1.48	41.9	2.60	43.9	5.96	48.9
1883.....	5.26	41.5	3.48	40.2	4.36	50.1
1884.....	1.80	39.6	1.29	44.2	2.41	41.3
1885.....	2.33	41.9	1.44	45.6	2.79	48.7
1886.....	2.77	38.5	1.74	42.4	5.73	45.3
1887.....	2.41	38.	1.36	41.2	3.33	46.6
1888.....	2.89	40.9	3.41	40.	4.85	45.5
1889.....	3.49	38.5	4.05	38.2	5.56	44.2
Mean 1880-88, inclusive.....	2.86	39.3	2.65	41.3	4.26	45.6
1888, excess .....	1.63	.....	1.40	.....	1.30	.....
1889, decrease.....	.....	.8	.....	3.1	.....	1.4

## DECEMBER.

YEAR.	CHICAGO.		SPRINGFIELD.		CAIRO.	
	Rainfall.	Temp.	Rainfall.	Temp.	Rainfall.	Temp.
1880.....	1.01	23.	1.10	26.	2.22	32.6
1881.....	2.67	37.1	4.81	39.9	3.70	45.1
1882.....	1.99	26.	3.04	30.7	2.65	37.6
1883.....	1.60	30.2	3.17	33.8	2.18	42.2
1884.....	4.21	28.4	5.19	29.1	8.99	36.2
1885.....	3.35	31.1	2.52	35.6	3.01	39.
1886.....	1.75	25.	.80	26.4	3.25	30.7
1887.....	3.67	28.1	3.33	28.3	4.12	36.3
1888.....	1.94	31.3	1.99	33.1	2.40	38.3
1889.....	1.90	40.6	2.	44.4	.77	54.3
Mean 1880-88, inclusive.....	2.46	28.9	2.88	13.	3.61	37.5
1889, excess .....	.....	11.7	.....	.....	.....	16.8
1889, decrease.....	.56	.....	.88	.....	2.84	.....

JANUARY, 1890.

YEAR.	CHICAGO.		SPRINGFIELD.		CAIRO.	
	Rainfall.	Temp.	Rainfall.	Temp.	Rainfall.	Temp.
1880.....	3.53	40.1	2.70	43.8	4.56	51.3
1881.....	.87	19.5	.84	21.9	3.56	29.3
1882.....	1.55	28.3	2.48	31.7	6.35	38.5
1883.....	1.74	16.3	1.96	20.9	2.71	32.3
1884.....	1.39	19.2	1.51	20.8	2.32	27.9
1885.....	3.18	18.3	2.81	20.3	3.49	29.8
1886.....	3.56	21.4	2.19	22.7	3.82	25.4
1887.....	3.13	16.9	1.09	23.4	2.15	33.4
1888.....	1.56	15.1	3.03	17.5	2.80	31.7
1889.....	1.64	28.3	2.13	29	4.61	37.5
1890.....	2.98	32.2	5.72	33.3	6.32	44.6
Mean 1880-90, inclusive .....	2.28	24.1	2.40	25.9	3.88	34.7
1890, excess.....	.70	8.1	3.32	7.4	2.44	9.9

TABLES SHOWING TEMPERATURE, MORTALITY, CHIEF CAUSES OF DEATH, AND THE INFLUENCE OF THE PANDEMIC UPON THE SAME.

BOSTON—Estimated Population, December, 413,000; January, 418,000.

Week Ended.	Mean temperature.	Deaths reported	Annual rate 1000 population.	Deaths under 5 years.	Diphtheria and croup.	Acute lung diseases & cons'p'n.	Principal infectious diseases
1889.							
December 7.....	32.3	153	19.23	56	15	24	25
“ 14.....	42.3	153	19.23	41	11	21	25
“ 21.....	38	193	24.28	53	.....	31	25
“ 28.....	39.8	232	29.16	63	20	47	29
1890.							
January 4.....	37.6	348	43.28	72	23	121	31
“ 11.....	29.2	416	51.75	87	20	153	29
“ 18.....	35.5	345	42.92	60	19	138	25
“ 25.....	30.9	214	25.61	43	18	56	23
February 1.....	.....	192	23.86	43	.....	.....	.....
“ 8.....	.....	169	21.15	39	.....	.....	.....

It will be seen from the foregoing table that the disease began to show its influence upon the death rate in Boston in the week ending December 21, increasing in its effect until the week ending January 11, when it reached its height; also, that in this week the mean daily temperature was the lowest for the five preceding weeks. Taking the number of deaths the week before the malady began to manifest its effect to the week ending February 8, as a basis, it will appear that 885 deaths occurred from this cause and the meteorological conditions that obtained; also, that of this number there was an increase of 136 deaths under five years. This increase of deaths was mainly among diseases of the respiratory organs, those suffering from chronic diseases, and the weak and aged.

## NEW YORK—Population, 1,571,558.

Week Ended.	Deaths reported.	Rate 1000 population.	Annual rate 1000 population.	Deaths under 5 years.
1889.				
December 14.....	640	.407	21.17	206
"    21.....	665	.423	21.99	220
"    28.....	762	.484	25.16	240
1890.				
January 4.....	1,202	.764	39.62	311
"    11.....	1,424	.906	47.11	327
"    18.....	1,151	.732	38.07	302
"    25.....	872	.554	28.84	265
February 1.....	782	.497	25.84	265
"    8.....	765	.486	25.29	289

It is barely possible that the disease manifested itself in the week ending December 21, in New York City. But its rapid increase during the next two weeks is more marked than in either of the two preceding cities, reaching its highest point January 11. From its first appearance to the week ending February 8, 2,503 deaths may be attributed to this cause, of these there were only 512 under five years. Was this rapid spread due to the density of population?

## PHILADELPHIA—Population, 1,040,245.

Week Ended.	Deaths reported.	Rate 1000 population.	Annual rate 1000 population.	Deaths under 5 years.
1889.				
December 14.....	366	.351	18.25	118
"    21.....	366	.351	18.25	135
"    28.....	404	.388	20.17	112
1890.				
January 4.....	492	.472	24.54	135
"    11.....	718	.690	35.88	128
"    18.....	777	.746	38.79	164
"    25.....	552	.536	27.87	128
February 1.....	502	.482	25.06	143
"    8.....	461	.443	23.04	162

In Philadelphia, the disease manifested itself in the week ending December 28, and culminated in the week ending January 18. From December 28 to February 8, there was an increase of 1,344 deaths due to this disease. Of these there was an increase of only 111 cases under five years.

## CLEVELAND—Estimated population, 240,310.

Week Ended.	Mean temperature.	Deaths reported	Rate per 1000 population.	Annual rate 1000 population.	Under 5 years	Typhoid fever.	Diphtheria and croup.	Acute lung diseases.	Consumption.
1889.									
December 21...	42.2	92	.383	19.93	45	4	11	14	12
"    28...	42.2	70	.291	15.16	34	.....	.....	10	5
1890.									
January 4.....	39	101	.420	21.88	50	.....	5	22	10
"    11.....	43.8	135	.562	29.25	47	7	9	29	12
"    18.....	31.2	149	.620	32.24	58	4	9	50	4
"    25.....	28.3	144	.599	31.16	62	3	10	39	14
February 1.....	38.4	144	.599	31.16	63	2	8	52	8
"    8.....	.....	110	.....	.....	53	.....	.....	.....	.....

In Cleveland the effect of the diseases was manifest in the week ending January 4, culminating about January 25, when the mean weekly temperature was lowest. From the week ended January 4 to the week ended February 8, 363 deaths may be ascribed to the influenza: of these 129 were under five years of age. As in other cities, this increase is mainly among pulmonary diseases.

CHICAGO—Estimated Population, 1,075,000.

Week Ended.	Mean temperature.	Deaths reported	Annual rate 1000 population.	Deaths under 5 years.	Diphtheria and croup.	Acute lung diseases	Consumption.	So-called Influenza.
1889.								
December 21.....	42.8	321	15.52	126	30	58	22	.....
" 28.....	41.7	352	17.02	160	36	64	31	1
1890.								
January 4.....	34.8	417	20.17	190	45	108	44	1
" 11.....	37.6	497	24.04	209	44	138	55	3
" 18.....	26.4	616	29.79	217	41	218	53	16
" 25.....	20.1	694	33.56	314	36	224	63	25
February 1.....	39	558	26.98	246	28	154	43	19
" 8.....	34	613	29.65	289	25	138	53	16

In Chicago, the pandemic first made its effect manifest in the death rate for the week ending December 28, and reached the highest point January 25, when also the mean temperature was the lowest that had been observed during the present winter. It was two weeks longer culminating than in Boston. From the week ending December 28 to the week ending February 8, 1,500 deaths may be attributed to the malady: of these there were 774 under five years of age, a number much greater proportionally than in any other city. Is there a greater infantile population in Chicago than in other cities? Nearly two-thirds of the deaths were caused by diseases of the respiratory organs.

BALTIMORE—Population, 500,343.

Week Ended.	Deaths reported	Rate 1000 population.	Annual rate 1000 population.	Deaths under 5 years.	Diphtheria and croup.	Acute lung diseases	Consumption.
1889.							
December 14.....	158	.311	16.43	59	9	22	22
" 21.....	162	.323	16.85	49	9	26	21
" 28.....	192	.383	19.96	69	6	30	29
1890.							
January 4.....	166	.331	17.26	54	8	19	24
" 11.....	211	.421	21.94	64	12	46	30
" 18.....	286	.571	29.74	92	6	71	40
" 25.....	267	.533	27.76	85	9	61	41
February 1.....	212	.423	22.02	57	5	35	36
" 8.....	189	.373	19.65	71	7	26	32

It was during the week ending January 11 that the malady made itself manifest in Baltimore in the increase in the death rate, culminating on the 18th of the same month. From its first appearance to the week ending February 8, there was an increase of 153 deaths, and of these 119 were under five years.

## WASHINGTON—Population, 225,000.

Week Ended.	Deaths reported.	Rate 1000 population.	Annual rate 1000 population.	Deaths under 5 years.
1889.				
December 14.....	96	.426	22.15	28
“ 21.....	54	.240	12.48	.....
“ 28.....	81	.360	18.72	24
1890.				
January 4.....	95	.422	21.94	27
“ 11.....	132	.546	28.39	48
“ 18.....	150	.666	34.63	44
“ 25.....	161	.715	37.18	.....
February 1.....	114	.506	26.31	.....
“ 8.....	96	.422	21.94	25

In Washington its effect was noticed in the week ending January 11, culminating in the week ending January 25, and causing 178 deaths. Was this increase owing to the large negro population?

## CINCINNATI—Population 225,000.

Week Ended.	Deaths reported.	Rate 1,000 population.	Annual rate 1,000 population.	Deaths under 5 years.
1889.				
December 14.....	110	.488	25.37	.....
“ 21.....	110	.488	25.37	.....
“ 28.....	109	.488	25.37	.....
1890.				
January 4.....	116	.515	26.78	.....
“ 11.....	137	.608	31.61	.....
“ 18.....	164	.724	37.64	.....
“ 25.....	175	.777	40.40	.....
February 1.....	142	.631	32.81	.....
“ 8.....	117	.515	26.78	58

In Cincinnati, it did not show its effect on the death rate until the week ending January 11, and its culminating point was reached in the week ending January 25. There was an increase of 155 deaths from the week ending January 11 to the week ending February 8.

## ST. LOUIS—Population 450,000.

Week Ended.	Total deaths.	Annual rate per 1,000 population.	Pneumonia.	Diseases resp. organs, not tuberculous.*	Under 5 years.	Sixty years and over.
1890.						
January 4.....	150	17.33	12	16	38	25
“ 11.....	130	15.02	8	19	43	23
“ 18.....	175	20.10	32	44	56	27
“ 25.....	164	15.34	32	50	42	27
February 1.....	201	23.22	34	63	61	29
“ 8.....	172	19.87	30	44	49	33

\* Under diseases of the respiratory organs not tuberculous, in fifth column, the pneumonias are included; for example, the first week, 16 in the fifth column represents 12 from pneumonia and 4 other diseases respiratory organs; in the third week, 32 of the 44 in the fifth column were pneumonia, 12 being from other diseases of the respiratory organs, and so on.

In St. Louis, while cases occurred about January 1, its influence on life was not manifest until the 18th. From the week ending January 18 to that ending February 8, 192 deaths may be attributed to the disease, and will be observed that for the week ending February 1, the deaths at St. Louis were greater, while in other cities where the disease had prevailed for some time, the number had greatly decreased. Dr. George F. Dudley, Health Commissioner of St. Louis, says: "Diseases of the respiratory tract have been more prevalent than usual during the past month than for the few months previous. As compared with last year, the deaths from pneumonia are greater this year for the month of January. We have recorded some deaths from 'influenza;' others as different forms of pneumonia complicating influenza; others again as influenza complicating some chronic trouble, as chronic myelitis, etc. As a whole the epidemic has been mild, hardly to be called an epidemic. It has been with us since about the beginning of the year, and the last week in January having the highest mortality rate, there being a decided increase in deaths from pneumonia. We have not suffered in comparison with other cities at home and abroad. The symptoms in many cases resembled those of dengue." Its influence will probably be felt a week longer in St. Louis.

Influenza has also made its appearance at Charleston, South Carolina; two deaths have occurred from this cause since the first of January at New Orleans. It is at this time prevalent throughout Illinois, and it would seem from the foregoing tables, that in cities where the death rate was unusually low the effect of the pandemic was more marked in its influence upon life.

It is probable that about 12,000 people have died within the last seven weeks from causes due more or less directly to the prevalence of this disease—a greater fatality than has occurred in the United States from any epidemic in the same length of time.

It is claimed that three or four weeks is the usual duration of the epidemic; but the Secretary thinks that it depends more on the number of inhabitants and the density of the same in a given locality, and the meteorological conditions that obtain.

#### *Influenza and Cholera:*

One of the most distinguished medical authorities in St. Petersburg recently announced the firm conviction that cholera would follow the epidemic of influenza in Russia, as it had six times in the past. Dr. Hirsch—the highest authority on epidemics—is of the opinion that it was an accident, and the Secretary concurs with him, and cites numerous instances which go to confirm this opinion.

The Secretary says: "As so little is known regarding this disease. I think it very important that every effort should be made to secure information to elucidate the unsettled question regarding its etiology and history. I would suggest, therefore, that a circular letter should be addressed to the medical men of this State asking for information."

*Cholera:*

By the 10th of November the disease had spread to the city of Mossul, and by the 1st of December had invaded three-fourths of Mesopotamia and the Turko-Persian frontier, although its mortality had greatly diminished. Recent advices show that it has made considerable inroads into Persia. In Central Persia there is an alarming increase, and the inhabitants are fleeing northward toward the Russian ports on the Caspian.

A St. Petersburg dispatch of January 27, 1890, says that Persian Khorasan is ravaged by an intestinal disease of excessive fatality, its exact nature unknown; 3,000 deaths being reported. At Nur, in Meshed, a district in upper Persia, as many as a hundred deaths occur daily. This town is only a short distance from the Caspian Sea.

"Remembering that this is the route into Europe which cholera has so often taken before," says the London *Lancet*, "the announcement will be regarded as one of no little gravity, the more so because the Caspian port towns and fishing villages have a bad reputation in regard to those sanitary conditions which are known to favor the diffusion of cholera."

It is also reported that the epidemic at Bagdad, which had abated toward the end of November, is raging again with renewed fury.

*Diphtheria:*

There has been an increase in the number of reports of this disease during the last quarter. The extent of its prevalence, as compared with the usual rate of illness from this cause, is greater. There has been considerable correspondence in connection with these cases, some personal visits have been made to infected places and hundreds of Diphtheria Circulars have been distributed. There was a decided tendency to the prevalence of the disease in October. More outbreaks were reported and the disposition to spread over more territory seemed greater during that month, and the fatality was more marked than later in the season. Where a strict enforcement of the rules of the BOARD was carried out the disease abated.

Reports have been made of the presence of diphtheria at Chicago, Greenfield, Decatur, Greenville, Gladstone, Mackinaw, Macon, Morris, Renault, Waverly, Wauconda, Beardstown, Dallas City, Bloomington, Hillsboro, Pana, Pekin, Ritchie, Rockford, Waukegan, Alton, Champaign, Clinton, Illiopolis, LaSalle, Ludlow, Lombard, Mount Olive, Mendon, Newman, Peru, Pleasant Plains, Rantoul, Streator and Springfield. A case was cited showing the necessity of a strict observance of the rules of the BOARD in regard to reports of causes of death, public funerals, and the care and transportation of the bodies of those who die of contagious diseases. The body of a child, who had died of diphtheria at Ravenswood, Ill., on December 6, 1889, was taken to Zanesville, Ohio, on the 8th. The coffin was opened and the remains viewed. Nine cases of diphtheria followed, four resulting fatally.

*Scarlet Fever:*

Comparatively few reports of this disease have been received during the past quarter. There have been reports of outbreaks of more or less severity



at Anna, Athens, Beardstown, Bentley, Carlyle, Earlville, East St. Louis, Keithsburg, Morris, Pleasant Plains and Galesburg.

#### *Typhus Fever:*

A communication from the Secretary of the State Board of Health of New York gave notice of six cases of typhus fever occurring among steerage passengers who arrived on the S. S. *Westerland*, at New York. A list of the steerage passengers accompanied the report, and a copy of same was made and sent to the Health Commissioner of Chicago, to assist in detecting the origin of cases, should any develop in that city.

#### *Chicago Sewage and the Pollution of Water Supplies:*

The Secretary has continued to give much time, labor and study to the Chicago sewage problem. The following memorial, authorized by the BOARD, has been presented to the Mayor and Common Council of the city of Chicago, and referred to the Committee on Finance:

#### *To the Honorable, The Mayor and Common Council of the City of Chicago:*

Owing to the increased quantity of sewage that empties into the Chicago river, and the small amount removed by the Bridgeport pumps, the river during the past season was as offensive as at any time before the deep cut in the canal was made; and, in fact, in the history of the city. Not only is the river a nuisance in its present condition, but it is a positive source of danger to the health of the citizens of Chicago, which will increase with its growth in population. The sanitary interests of Chicago and the communities in the DesPlaines and Illinois valleys imperatively demand that the sewage of Chicago, pumped into the canal, shall be diluted on the minimum scale of 14,000 cubic feet per minute for every 100,000 people who drain into the Chicago river. In winter when oxidation is retarded by ice formations, shutting out light and air, by low temperature and by impeded motion, greater rather than a less quantity should be pumped. This is not a surmise; it is an absolute certainty, fully proved by careful investigations and recent analyses. As a matter of fact, the average quantity pumped during the period covered by the analyses referred to did not exceed 45,000 cubic feet a minute during the summer of 1888; nor was it more than 38,000 cubic feet a minute during the winter of 1888-89. The larger quantity is less than one-half the minimum dilution now necessary to prevent nuisance in the river and at Joliet. The sanitary interests of Chicago require the increase of pumping to at least 120,000 cubic feet a minute at this time. With comparatively small outlay the canal can be made to carry 100,000 cubic feet a minute, though probably one or two bridges would have to be raised.

Owing to the fact that the canal cannot carry off a sufficient amount, pumping works for further relief should be immediately erected at some suitable point of discharge on the DesPlaines river, as recommended by this BOARD in 1879, in addition to such an increase of the pumping plant at Bridgeport as may be practicable, to provide for the present necessities and augmented amount of sewage that will be discharged between the present time and the completion of the waterway from Lake Michigan to the Illinois river.

With the sewage of more than 800,000 people already discharging into the Chicago river the minimum dilution above specified, 14,000 cubic feet a minute to the 100,000 of the people, requires at the present time that at least 120,000 cubic feet a minute be pumped. The heavy rainfall of July 27 and 28, 1889, of over four inches, carried the accumulated sewage beyond the crib and polluted the water supply. Had it not been for the notice given to boil the water before using and the remarkably low and equable temperature for more than a month after this heavy rainfall, the influence of this pollution of the water would have been much more

marked upon health and life than it was. Under certain circumstances, two inches of rainfall in twenty-four hours in this city is a menace to its water supply. Spring freshets also and the rainfall in one day of three inches with the present pumping capacity always pollutes the water. As compared to the benefits to be derived from this work of diluting and removal of the sewage, the cost of this temporary undertaking should cause no hesitation. It is then a matter of the most vital importance, and an absolute sanitary necessity that provision be made for pumping the amount of water mentioned, and this provision should be made without delay. The conditions that obtain are a constant menace to the health of the people. Delay in this matter by those in authority, so far as the people of Chicago are concerned, is simply criminal, and as regards the adjoining communities that are imposed upon by this nuisance an outrage.

*For the Illinois State Board of Health.*

JOHN H. RAUCH,

November 27, 1889.

*Secretary*

The urgency of prompt action in deciding upon measures of relief and speedily putting into operation whatever plan may be adopted will be apparent when it is stated that no pumping has been done at Bridgeport since January 1. The "bay," as it is called, or the portion of the river from which the water is pumped, was so full of sludge and matter of various kinds that it had to be cleaned out, and pumping was stopped. In consequence of the memorial, the indications are that something will speedily be done to protect the Chicago water supply and to prevent the nuisance in the Chicago river and along the Illinois and Michigan Canal, and at Joliet. In my conference with the authorities I have insisted upon provision being made for the pumping of 14,000 cubic feet per minute for every 100,000 of population draining into the Chicago river and its branches.

*American Public Health Association:*

In pursuance of instructions, your President and Secretary represented the BOARD at the seventeenth annual session of the American Public Health Association, at Brooklyn, October 22, 23, 24, 25. It was attended by representative sanitarians from all parts of the United States and Canada. A number of very important papers were read and discussed. An excursion to the quarantine station gave an opportunity for inspecting the arrangements and the accommodations made and provided for the sanitary protection of the country against the importation or dissemination of epidemic, infectious and contagious diseases. No State is more dependent than Illinois upon a well equipped and carefully conducted quarantine service at the seaboard, for protection against the great tide of immigration, and the conveyance of pestilential diseases. Great improvements have been made since my previous inspection, in 1886.

*Medical Practice:*

At the end of the last quarter, the Secretary reported that the Supreme Court in the case of appeal by the BOARD against "Blue Mountain Joe," had reversed and remanded the cause for re-trial in the County Court of Clark county. Process of service of notice of filing transcript of decision and proceedings in the Supreme Court was obtained on "Blue Mountain Joe," and in due time judgment in this case was entered against the de-

tendant. Another suit was brought against the same party at Marshall, with a similar result. These proceedings have shown that the Act to Regulate the Practice of Medicine is constitutional, at least so far as it pertains to section 2—the power to regulate and restrain the itinerant practicing and vending of medicine, and sustains the position taken by the BOARD that the method of business of such people is prejudicial to the public welfare.

In this connection attention is called to a recent decision of the Supreme Court of the State of Iowa, in the case of the State vs. Sidney Mosher, a traveling physician, who claimed a right to practice without a certificate from the State Board of Medical Examiners, as he had practiced more than five years in the State, and that he was not required to submit to an examination. The decision of the Court sustained the Medical Practice Act, and found that the Board had the right to determine as to length of time of practice and to examine as to competency to practice.

The attention of the BOARD was called at its last meeting to a complaint from LeRoy, McLean county, against the Oregon Indian Medicine Company, as itinerant prescribers and venders of medicine. Suit was brought and trial set for October 1, 1889, at LeRoy, but the defendants left during the night and judgment was taken by default, the fines amounting to \$1,700. Five suits had been commenced against "Dr." Oregon Charley, and four against the manager of the concern, Col. T. A. Edwards. This company was the same that visited a number of towns in northern Illinois, giving free consultation to the sick, prescribing medicine during the day, and at night lecturing in public halls, giving dramatic entertainments and operatic performances; then selling such Indian medicines as Modoc Oil, Worm Eradicator and Katonka. The ingenuity of itinerant prescribers in devising schemes for defrauding afflicted and credulous people is as varied as their dupes are numerous. The boldness of their pretensions is equaled only by the unscrupulous means they adopt to defraud the public.

The following case recently came under the Secretary's notice, and is given as an illustration of the methods of some of these traveling prescribers and medicine venders:

An itinerant from Iowa appeared in Hancock county selling medicine, extracting teeth and prescribing. He would ask for certificates of cure from those he treated, who, having granted them, found to their surprise that these certificates were notes of hand for amounts varying from \$25 to \$50, which they would be obliged to pay. These last two are the only attempts made during the year in this State by itinerant venders.

In conformity with the instructions of the BOARD at its meeting of September 27, 1889, notice was sent to Mr. George E. Patton, at Pontiac, attorney for Mrs. Deoss, that no certificate would be issued because of lack of full compliance with the requirements of the BOARD, and the fee of \$5 was returned. Notice of appeal to the Governor was received, and the case coming on for hearing on November 30, the Attorney General,

by his assistant, Mr. E. S. Smith, appeared before the Governor in behalf of the BOARD. The following is a communication in regard to the action taken by the Governor:

STATE OF ILLINOIS, EXECUTIVE OFFICE,  
SPRINGFIELD, December 27, 1889.

DR. J. H. RAUCH, *Secretary of the STATE BOARD OF HEALTH*:

MY DEAR SIR:—I am directed by the Governor to inform you that in the matter of the application of Mrs. Deloss for a license to practice medicine, heard by the Governor on appeal from the STATE BOARD OF HEALTH, that he has passed upon the case and has rendered the following decision: "Having looked into this record thoroughly and having heard the arguments of counsel, and being fully advised in the premises, it is ordered that the finding of the ILLINOIS STATE BOARD OF HEALTH be affirmed."

Yours very truly,

H. G. REEVES.

This was an application, it will be remembered, for a license under the years of practice clause. The applicant was more or less of an itinerant, advertising as the "widely known botanical and faith doctor—she takes the hand, asks no questions, and tells you all your diseases and the cure." The case is one that has been pending for a long time, occupying the attention of the BOARD at several meetings.

#### *Neurology:*

I regret to announce the death of Dr. David Prince, who died at his home in Jacksonville, December 19, 1889, of pneumonia, after a short illness, at the age of 73 years and 6 months. For fifty years he had been one of the most prominent practitioners in Central Illinois, and was a member of many local, state and national medical and scientific societies. He held an influential position in local affairs, and manifested great interest in the promotion of the cause of education. He took great interest in his chosen profession and continued laboriously engaged in his specialty of surgery up to the time of his last illness.

#### *Certificates Issued:*

There were issued during the quarter 142 certificates authorizing the practice of medicine in the State; 123 to graduates upon diplomas from medical colleges in good standing; ten to non-graduates upon proof of ten or more years practice in the State prior to July 1, 1877; one upon examination, and eight duplicates upon proof of the destruction of the originals. Certificates were also issued to twenty-five midwives—twenty-three upon diplomas or licenses, and two upon examination.

During the year 528 original and sixteen duplicate certificates authorizing the practice of medicine were issued. Of the 528 original certificates issued, 509 were to graduates of medical colleges; fourteen to practitioners of ten or more years practice prior to July 1, 1877, and five to candidates on examination. Of the 509 certificates issued to graduates of medical colleges, thirty were upon diplomas of colleges that had not complied with the requirements of the BOARD with regard to preliminary education, and these diplomas were required to be supplemented by examination of the applicants on the branches or subjects omitted by the respective schools,

or by evidence of graduation from a scientific or literary institution. Sixty applications were refused owing to the inability of the applicants to comply with the terms of the Medical Practice Act, or the rules of the Board based thereon.

To midwives eighty-four certificates were issued during the year; fifty-five being to licentiates, twenty-seven upon examination and two upon years of practice in the State. Forty-five applications were refused, mainly because of failure to pass the prescribed examination.

The number of certificates issued in 1889 was greater than for any year during the last eight years. This is owing to the enforcement of the last Act to Regulate the Practice of Medicine. With the close of this year will practically end the question of recognizing applicants for certificates under the provisions of years of practice in this State.

#### *Correspondence:*

During the year 1889, there were received in the office of the Secretary, 6,892 written communications, and over 6,000 were sent out—2,227 of these having been received, and 2,250 sent during the last quarter, mostly in connection with the preparation of the Official Register of Physicians. Of printed matter there were distributed 2,667 copies of the various annual reports of the BOARD, 2,732 Reports on Medical Education, 2,206 of the Preliminary Report on Water Supplies of Illinois and the Pollution of its Streams, over 10,000 of the Preventable Disease Circulars, vaccination certificates, etc., and about 1,000 blanks for the return of vital statistics.

Upon motion, the report was received and ordered printed.

The recommendations made in the Secretary's report were discussed, and upon motion of Dr. B. M. Griffith, the Secretary was authorized to prepare and issue to medical men a circular letter covering the inquiries desired in regard to the epidemic of influenza in this State. The Secretary was also authorized to prepare and issue his report upon Medical Education and Medical Colleges.

#### *Medical Practice Act:*

The application for a license, made by Dr. George E. Harrison, of Chicago, was laid before the BOARD, with accompanying telegrams and correspondence. The papers in the case were referred to Dr. Clark, as special committee, with power to act.

The matter of the application of Franklin D. Clarke for a license to practice medicine under the Act to Regulate the Practice of Medicine in the State of Illinois, coming up for consideration, the BOARD finds that each and all the charges against said Clarke are sustained by the evidence, and that—

1. Said Franklin D. Clarke is guilty of conducting his business by means of obscene books, pamphlets, circulars and newspaper advertisements, deliberately calculated to deceive and defraud the weak, unfortunate and credulous.

2. That said Franklin D. Clarke is guilty of selling books, pamphlets and appliances for immoral purposes, thereby familiarizing the youth of both sexes with the loathsome and repulsive details of so-called "Secret Diseases," thus prostituting the potent influence of the sexual relations, and the generative functions to base and venal, if not criminal purposes.

3. That said Franklin D. Clarke is guilty of making false and fraudulent statements, intended to deceive the public and his patients, when he advertises as having been established in Chicago since 1851, while in his application for a certificate, dated December 31, 1887, he swore he had been in continuous practice in this State twenty-three years—the latter statement being also untrue.

4. That said Franklin D. Clarke is guilty of making false and fraudulent statements, intended to deceive the public and his patients, in advertising himself as at Chicago, Cincinnati, Detroit, St. Louis and Milwaukee at one and the same time, making substantially the same claims in all the advertisements.

5. That the said Franklin D. Clarke is guilty of making a false and fraudulent statement, intended to deceive the public and his patients, in appending to his name in his advertisements the letters "M. D."

6. That said Franklin D. Clarke is guilty of making false and fraudulent statements, intended to deceive the public and his patients, when he advertises: "No fee until better," "The Regular Old Established Physician and Surgeon," "Treating with the Greatest Skill and Success," "Treated scientifically by new methods with never failing success," "Immediate Relief and Comfort," "All blood and skin diseases completely eradicated without mercury," "Age and Experience important, etc."

7. That said Franklin D. Clarke is guilty of making false and fraudulent statements, intended to deceive the public and his patients in that he advertises "Age and Experience Important," "Consult the celebrated Dr. Clarke at once," when the business of his Chicago office is practically conducted and attended to by young and unqualified employes.

8. That said Franklin D. Clarke is guilty of exaggerating the condition of his patients, prescribing for all, whether they need treatment or not—for gain.

Thereupon Dr. Griffith moved that the application be declined, and that the Secretary confer with the Attorney General as to perfecting the papers. and it was therefore

*Ordered.* That the application of said Franklin D. Clarke for a license under the Act to Regulate the Practice of Medicine, be and the same is hereby refused and the Secretary is directed to so notify the applicant.

Adjourned.

## QUARTERLY MEETING, CHICAGO, MAY 1-2, 1890.

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The regular quarterly meeting of the ILLINOIS STATE BOARD OF HEALTH was held at the Grand Pacific hotel, in Chicago, Thursday and Friday, May 1 and 2, 1890.

Present during the session: Dr. W. A. Haskell, President, in the chair; Drs. R. Ludlam, A. L. Clark, W. R. Mackenzie, D. H. Williams, B. M. Griffith, and the Secretary, Dr. John H. Rauch.

The BOARD was called to order at 10 A. M., Thursday, and the minutes of the Annual Meeting of January 30th, 1890, and of the adjourned session of that meeting, held February 13th, 1890, were read and approved.

Upon call for reports of officers, the Secretary presented his

### QUARTERLY REPORT.

By the first of February the epidemic of so-called influenza had almost disappeared, although there have been cases reported as suffering with the sequelæ of that disease adding materially to the mortality of the past quarter.

Reports of the prevalence of diphtheria have been less in number than for the previous quarter. Reports from local Boards of Health and individual practitioners show that there have been cases at Prairie City: twelve cases at Morris, located in two houses, two deaths reported; at Bensonville, Troy Grove, Belvidere, Canton, Berlin, Ferris, Chapin, and cases at Alton, attended with more than usual fatality.

Much interest has been taken in a disease reported as prevailing at Saybrook, McLean county. It was charged on the one hand that the cases were not diphtheria, but that the diseased condition of throat was due to bad treatment and mistaken diagnosis. It was claimed, on the other hand, that the disease was diphtheria, and epidemic. A feeling of semi-panic prevailed, interrupting business during a part of the month of February. In order to ascertain the exact condition and history of affairs, Dr. B. B. Griffith was requested to make a visit of inspection, and reported as follows:

"There were no cases existing at the time of my visit. From Dr. J. F. Meyers I secured the following information: He was away from home at the commencement of the epidemic and saw no cases until the later part of January. From this time to the middle of March he treated quite a number of cases of the trouble. It was confined to no particular locality of the town or surrounding territory.

"The initiatory symptoms of the disease were a tired aching sensation—soreness in the bones,—some fever and a congested condition of the whole mucous membrane of the pharynx causing a very sore feeling in the throat. This condition lasted usually two or three days, when recovery ensued as in any case of acute pharyngitis. He had no relapses. The disease was confined to adults principally, children in the same family being exempt, thus showing the trouble to be a non-contagious inflammatory condition of the mucous membrane of the throat. He found it unnecessary to isolate or quarantine any of his cases. Reports no deaths. Thinks there were in all 'between two hundred and three hundred cases.'

"Drs. Winter and Chapin report that the disease assumed an epidemic form about the middle of December, 1889, and continued more or less as such into March; confined to no particular vicinity or neighborhood. The disease commenced with a tired sensation—aching all over—with fever and a depressed condition of the system. There would be a membrane form in some part of the pharynx which would spread over the whole of the mucous membrane of the throat. The average duration of the disease would be little less than one week. There were several cases in which relapse occurred; confined to adults; not so severe as the primary attack and more easily controlled. The disease attacked children more frequently than adults and was of a highly contagious character. Isolation and quarantining was practiced and the room afterwards fumigated. Had no deaths during the prevalence of the epidemic; think that there were some. think less than one hundred cases altogether."

Very few reports of scarlet fever have been received. Some uneasiness was manifested at the prevalence of the disease at Midland City, DeWitt county. A telegram from C. P. Sprague, Esq., of Beason, Supervisor, was received March 21, requesting an investigation of the cases. Dr. J. H. Utley, of Springfield, by request, visited Midland City, and made the following report of his inspection:

"There appears to have been a dispute as to the nature of the cases, and, except in two children, the disease was of such a mild type that an error in diagnosis was natural. One of the children had died before my arrival, and the other was in the desquamative stage of scarlet fever. In both of these cases there had been the characteristic eruption.

"Before my arrival the school of the village had been closed, and as I considered the danger of the disease spreading as considerable, I directed a continuance of this measure together with the other usual precautions.

"The village is small, and the danger of any further trouble slight, if the precautions are carried out."

Correspondence relating to these reports and epidemics has been directed towards assisting local authorities to manage outbreaks of disease, to prepare and adopt suitable health ordinances, and to facilitate the distribution of the circulars of the BOARD upon prevention of epidemics.

Questions as to location of cemeteries have also arisen involving several problems of unusual sanitary interests.

Eight cases of trichiniasis were reported on April 5 by the Board of Health of Aurora. The Secretary made a personal investigation of the circumstances under which the development of the disease occurred. It appears that twenty-two persons altogether were afflicted, though the out-



break was mainly confined to two households, relatives, who clubbed together and bought a hog which they made into sausage, and this was eaten uncooked.

Unmistakable symptoms of trichiniasis were apparent, patients complaining of pain in the muscular parts of the body, and vomiting and purging. Portions of the sausage examined by the microscope showed trichinae, distinctly. Prompt action of the local board of health, and intelligent management of the patients, mitigated the dangerous effects of the infection.

#### *Typhoid Fever:*

An outbreak of typhoid fever has been reported at the Augustana College, near Rock Island. Following is the substance of a report made at the request of the Secretary by Geo. L. Eysrer, M. D., of Rock Island, Commissioner of Health:

"About the first of this month a number of the students at the Augustana College were attacked by typhoid fever. Since that time sixteen well marked cases of typhoid fever have developed. Outside of this a number of the students, probably twenty, have been more or less indisposed, most of them with slight fever extending for various lengths of time. Of the cases of typhoid, four have died, and of the others a number are in very critical condition.

"About ten days ago the college authorities requested me to investigate the cause of the outbreak of disease. Upon inquiry I found that there was not a similar case any where in Rock Island or Moline outside of those connected with the college. Also that those affected were all persons who lived in a certain one of the college buildings, viz.: the old college. I made careful inquiry also as to whether any of those affected or in fact any living in the building had had any communication with a case of typhoid, but I could not discover any history of such communication.

"I found that they were using water from a hydrant of the Rock Island city service, with the exception of a few, who used water from a well on the college grounds; but I found that of those first taken none used this well water at all. I had sample of well water, and also sample of the milk used, examined and analysed. The chemist could not discover any impurities in either of them. I then examined the drainage and plumbing of the building, and in them I am satisfied discovered the cause of the outbreak of disease.

"The sewer with which the building is connected is about three blocks in length, beginning at the building affected and having a fall of about fifty (50) feet to its mouth on the river bank, but not extending beyond low water mark, and consequently during the past winter the mouth of the sewer was uncovered. I found this sewer as arranged in the building without a trap or ventilator of any kind whatever. Not only this, but I also found the pipe in the building was tile pipe with loose joints and in its course throughout the basement no less than eleven holes unguarded in any manner. These holes had been mostly made for the reception of drain pipes and were picked from three to five inches in diameter into the tile in a ragged manner, and the drain pipe, about one-inch lead pipe, simply dropped into the holes without any attempt at a joint. The character of the sewer—an inclined plane with constant upward draft to the only exits, the holes in the pipes in the college building—convinced me that the building was literally overwhelmed with sewer gas. I can not account for the outbreak in any other way.

"I advised the college authorities to vacate the building at once until the defects in drainage and plumbing were rectified. This has been done. The sick were mostly transferred to another building in the college grounds, a few to St. Luke's Hospital in town."

*Small-pox:*

Four cases of this disease were reported at Anna, Union county, in the month of February. The patients were 3 brothers of the ages respectively of 2, 5 and 19 years, and their sister, 6 years of age; none had been vaccinated; there was one death from the hemorrhagic form in the person of a boy 5 years of age. The source of contagion was at first thought to be from a tramp. Subsequent inquiry makes it probable that the father of these patients had varioloid, unrecognized, and gave small-pox to the family. No infection spread from these cases. The usual precautions were taken—isolation, notification and vaccinations, of which not less than one thousand were made in that community. The inmates of the Asylum for the insane were especially looked after and vaccinated. People in adjacent communities were very watchful against importation of contagion and vaccination was generally resorted to.

A case of small-pox has been reported at East St. Louis in the person of a colored girl eighteen years of age, unvaccinated, source of infection unknown. Correspondence with the mayor, Hon. M. M. Stevens, of that city, showed that the case had been kept under close observation, and no further cases have been reported.

A case of discrete small-pox was reported at Dixon, Lee county, in the person of a young man twenty years of age, a student in a business college, first seen by the health officer January 11. Another case, claimed to be varioloid, was reported from the same city as having been sent to the hospital on January 28. There was a difference of opinion as to the nature of the disease of this patient, and by the Secretary's direction, Dr. Starkweather visited Dixon to inquire into the case. In order to quiet the feeling of alarm prevalent in the community and to settle differences of opinion among medical men, further counsel was had and the case pronounced to be not one of small-pox or varioloid. This is another instance to be added to many of the uncertainties and difficulties of reaching conclusions in regard to disputed points of diagnosis in the early stages of the disease. The precautions taken were in the right direction, even though both cases were not small-pox.

Inter-State notification of cases of small-pox has been made to all boards interested, and notices of cases have been received from the Boards of Health of Connecticut (13 cases reported), Michigan (2 cases), Wisconsin, Kentucky and Kansas. A notification of unusual interest was received from the Secretary of the State Board of Pennsylvania reporting a case of leprosy in a Chinese immigrant.

*Chicago Water Supply and Sewage:*

The Secretary has had several conferences, by invitation, with the finance committee of the City Council of Chicago in regard to enlarging the pumping facilities at Bridgeport. During the month of February, and portions of the month of March, the water supply has been more polluted than at any time within the last ten years. Recently the current of the river, owing to high water in the DesPlaines, has been setting into the lake with the usual results.

The pumping works, as repaired, are now pumping 55 000 cubic feet per minute, as reported by the Superintendent of the Illinois and Michigan Canal. An appropriation has been made by the City Council of Chicago providing for the necessary machinery to pump 80,000 cubic feet per minute. This is not sufficient always to protect the water supply or prevent nuisance to the people at Joliet.

*Office Correspondence:*

During the quarter ended March 31, 1890, there were received in the Secretary's office 1,491 written communications, exclusive of 91 diplomas submitted for verification: the papers accompanying the applications for certificates in 120 cases and the return of vital statistics from ninety-four county clerks. Nine hundred and sixteen letters and telegrams have been sent out, besides the usual number of preventable disease circulars and quarterly reports: 1,850 copies of the Tenth Annual and 250 of the other reports of the BOARD have been distributed. Blanks for the returns of vital statistics of the various counties in the State have been sent to the county clerks, and all but eight of the counties have reported as above stated.

The office force has been occupied in sending out the Tenth Annual Report and in the preparation of the Sixth Report upon Medical Education. This Report is now completed and is by far the most important one of the series. There is a great deal of new material in it and in it will be found evidence that the requirement of this BOARD made in July, 1887, with regard to four years of study and three annual courses of lectures, to take effect after the sessions of 1890-91 is an assured success. The Secretary would recommend that this BOARD call a Conference of all Boards having similar powers under their Medical Practice Acts for the purpose of securing co-operation and uniformity of action in issuing and recognizing certificates of examination, and in exercising a general supervision over the practice of medicine.

*Medical Practice Act:*

Certificates entitling to practice medicine under the Medical Practice Act were issued during the quarter to 91 graduates, upon diplomas from legally chartered medical institutions in good standing, and one duplicate. Eleven applications have been refused. Twenty-seven certificates were issued to midwives, twenty-five upon the credentials of recognized institutions of midwifery, one upon examination by the BOARD, and one upon years of practice.

The following communication, dated April 8th, has been received from Prof. Austin Flint, M. D., of New York City:

BELLEVUE HOSPITAL MEDICAL COLLEGE,  
NEW YORK, April 8, 1890.

DEAR DR. RAUCH: I enclose a copy of a diploma presented to us to-day for indorsement. The "College" is not in your list, but it is down in the last edition of Polk's Directory as "Department of Obstetrics, Indiana Eclectic Medical College."

Yours very truly,

AUSTIN FLINT, *Secretary.*

Following is the copy of the diploma referred to:

INDIANA COLLEGE OF MEDICINE AND MIDWIFERY.

*Chartered A. D 1878.*

After a diligent prosecution in the study of medicine and midwifery as required by law, and having passed a satisfactory examination upon all the departments of the practice before the Faculty of this College, we, the Trustees and Professors, by virtue of the authority vested in us by the laws of the State of Indiana, do hereby confer upon

ALEXANDER KUNSTLICH

the Degree of Doctor of Medicine and Midwifery, as awarded by this Diploma. In testimony whereof we set our seal and signatures, in the Indiana College of Medicine and Midwifery, on the twelfth day of March, Anno Domini MDCCCLXXX.

*Board of Trustees:*

Chas. P. Heil, *President.*

E. R. Payne, *Secretary.*

Aug. Teademan, *Treasurer.*

Chas. P. Heil, A. M., M. D., Prof. Anatomy and Dean.

M. D. Forsher, M. D., Prof. Physiology, Hygiene and Sanitary Science.

J. S. Jackson, M. D., Prof. Gen. Pathology, Histology, Microscopy, etc.

Alex. J. Walker, Esq., Prof. Jurisprudence, Midwifery and Nervous System.

M. Grimes, M. D., Prof. Diseases of Women and Children.

F. M. Loyer, M. D., Prof. Princ. Pract. Materia Med. and Therapeutics.

M. D. Forsher, M. D., Prof. Dis. of Heart, Lungs and Urinary Organs.

James M. Lorimer, M. D., Prof. Surgery, Eye and Ear Diseases.

J. I. Jordon, M. D., Prof. Orthopedic Surg. and Medical Science.

Edward Armstrong, M. D., Prof. Dermatology and Demonstrator of Anat

Chas. P. Heil, A. M., M. D., Prof. Chemistry, Analysis, Toxicology, etc.

[The above "diploma" is sealed with an official seal and all the signatures are lithographed.—AUSTIN FLINT.]

It should be explained that under the Act regulating the Practice of Medicine in the State of New York, it is necessary to have the diplomas issued by colleges of other states endorsed by a college of that State, or by the regents of the State university. In reply to the inquiry of Dr. Flint, I wrote as follows:

"At the time the Act to Regulate the Practice of Medicine in Illinois went into effect, Heil was at the head of the Northwestern School of Midwifery, in the City of Chicago. Application was made for recognition of its diplomas, and denied by our BOARD. Three months time was given to the graduates of his school for farther preparation, when upon examination nearly one-half were rejected. Heil himself could not obtain our license, and left the State because he was not a graduate, and had not been practicing in Illinois for ten years before 1877, and was afraid to be examined. He stated that he had been a hospital steward in the army.

"The next I heard of him, he was at Indianapolis, where he conducted a school of midwifery; two of his diplomas were offered by midwives to this BOARD, but recognition of the same were refused. I have written to Indianapolis, and am told that Heil's name does not appear in the city.

directory for 1888-89, nor is it enrolled in the list of physicians in the report of the Indiana State Board of Health for 1888-89; it is however in the report for 1887.

"The existence of the so-called 'college' was unknown to the Secretary of the Indiana State Medical Society, an old and well informed resident of Indianapolis. The name of the 'college' is not given at this time, in the lists of medical institutions in the city directory of Indianapolis.

"In the list of its professors the names of two, only, appear in the city directory—one, as a patent medicine maker, and seller of 'Jordan's Lung Renovator.' The name of the other, Martha A. Grimes, is found in the city directory, but not in the late issue of the State Register of Physicians. A man with the same name as that of the Secretary is reported by the directory to be a 'traveling agent.' Names of other professors, as given, are unknown in Indianapolis.

"Heil graduated in 1883, after one course of lectures, at the Eclectic Medical College of Indiana, and is now reported, in Polk's Directory, as residing at Covington, Ky., dean of the faculty and Professor of Obstetrics, in the 'The Ohio College of Obstetrics, Medicine and Midwifery', now located in Cincinnati, Ohio. This is an institution whose location could not be found, when I recently visited Cincinnati.

"As the copy of the diploma sent me bears date March 12, 1890,' one can easily see the fraudulent character of the same. The diploma claims that the 'Indiana College of Medicine and Midwifery' was chartered 1878. The Indiana Eclectic Medical College was only organized in 1880. I infer that persons are practicing not only obstetrics, but also medicine, in Indiana, under cover of these diplomas. This BOARD refused to recognize the diplomas of midwifery. The state of Indiana requires only the registration of a diploma from a legally chartered institution."

A certificate issued after apparently full compliance with the regulations of the BOARD has been returned to the office, because I learned that the applicant had attended only one course of lectures, and it was charged, had not even studied medicine three years. He is said to have been engaged in the drug business the past eighteen years. I accordingly asked to have the certificate sent back, which was done, and the fee returned to him.

It is a repetition in another form to report to the BOARD a new project to establish a medical school in this State. Under date of February 24th the opinion of the Secretary was desired as to the starting of a school of regular practice, intended to be a department of the "National University, 147 Throop street, Chicago," an institution conducted by 'forty-five eminent professors through direct correspondence, and modelled upon the plan of the London University." Reply was made that there was no need of any more medical colleges in this State.

The courts are gradually drawing more closely restrictions upon general laws incorporating all sorts of enterprises, upon payment of a nominal fee, as is the law in this and other states. The statute book of Vermont contains a general law providing for the organization of corporations by vol-

untary association for scientific, charitable and benevolent institutions and for societies providing for moral, intellectual and spiritual development. In the mandamus case of *Mrs. Townsend vs. Board of Censors of the State Medical Society of Vermont*, Judge Powers, of the Supreme Court of that State, dismissed the petition, deciding that the statute under which the "Second Medical College of the American Health Society"\* was organized, was not broad enough to confer upon it authority to issue diplomas. This statute covers organizations local in place and limited in powers; such as the formation of library or cemetery associations; but does not allow the issuing of degrees to students of law, medicine or divinity.

Soon after the organization of the BOARD my attention was called to a number of so-called universities, medical institutes and private dispensaries, chartered under "An Act concerning Corporations," approved April 18, 1872. An examination of the records in the office of the Secretary of State satisfied me that many of these corporations were fraudulent, and that it was an imposition upon the people of the State to grant them charters. I protested against granting any more, but was informed that according to law there was no remedy. [See Third Annual Report, 1880; page 21.] This opinion and protest, made ten years ago, have repeatedly been found to be true and well founded, and they are again corroborated by the correspondence and experience of the present year.

Respectfully submitted,

JOHN H. RAUCH, M. D., *Secretary*.

The Secretary's report was accepted and ordered spread upon the minutes.

Dr. Griffith offered the following resolution, which was duly adopted:

*Resolved*, That the Chair appoint a committee of two members to investigate the standing of such medical colleges as may be reported as failing to comply with the schedule of minimum requirements of the BOARD.

Referring to the recommendation of the Secretary, Dr. Mackenzie moved, and it was duly seconded and carried, that that officer be instructed to call a conference of all State Boards of Health and State Boards of Medical Examiners, having similar powers under their Medical Practice Acts, for the purpose of securing coöperation and uniformity of action in issuing and recognizing certificates of Examination and in exercising a general supervision over the practice of medicine.

An invitation from Dr. F. H. Wines, Secretary of the State Board of Public Charities, asking this BOARD to meet the Board of Southern Illinois Penitentiary Commissioners and the Board

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\* *Mrs. Townsend's diploma was from this institution, and the Vermont Board of Censors had refused to recognize it—hence the suit for a writ of mandamus.*

of Public Charities, to confer with them concerning plans for a building for an Asylum for the Criminal Insane, to be located at Chester, was received and accepted.

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AFTERNOON SESSION, 2 o'clock p. m.—Present as before. The matter of the application of H. G. Baird for a certificate, on a diploma of the Baltimore University School of Medicine, coming up for consideration, the Secretary was instructed to issue the certificate after being convinced of the good standing of the school.

Dr. A. Reeves Jackson, of Chicago, asks that a certain letter written by him to the Secretary, endorsing Dr. William C. Brinkerhoff, and now on file with Brinkerhoff's papers, may be returned to him. The BOARD decided to grant his request and the Secretary was directed to return said letter.

The action of the Secretary in declining to issue a certificate to Dr. A. O'Leary, an itinerant lecturer, was approved by the BOARD.

The BOARD met with the Commissioners of the Southern Illinois Penitentiary and the Board of Public Charities and, after examination, approved the plans for the Asylum for Criminal Insane, to be erected at Chester.

In the matter of W. W. Ireland, whose certificate was recalled on account of the failure of his college to comply with the requirements of the BOARD, it was, on motion of Dr. Mackenzie, seconded by Dr. Clark, ordered that his request to be allowed an examination by the Secretary in Springfield at an early date be granted.

Bills for the quarter, amounting to \$3,246.93 were audited and ordered to be paid.

At the examination of non-graduates of candidates for license to practice, the following presented themselves:

Frank C. Genung, Port Byron, Ill.

Albert S. Hazard, Lyndon, Whiteside county, Ill.

F. H. Lawther, 240 Wabash avenue, Chicago, Ill.

A. J. Morris, New Holland, Edgar county, Ill.

Mrs. J. F. Prentice, 859 W. Harrison street, Chicago, Ill.

James H. Walker, Easton, Mason county, Ill.

Drs. B. Napper and James H. Walker were examined in the English branches, the colleges from which they graduated not having complied with the requirements of the BOARD.

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FRIDAY, May 2, 1890.—The BOARD met at 10 o'clock a. m.

Dr. Griffith moved to reconsider the action in relation to the investigation by the BOARD of medical colleges, on account of its seeming invidiousness. The motion was seconded by Dr. Mackenzie, who said he thought it beneath the dignity of the BOARD. The BOARD was open to complaints, but to appoint an inspection committee to travel about, hunting cause for complaint, was a departure from the usual methods of the BOARD, which he did not approve.

The vote being taken, it was decided to reconsider the matter of the appointment of the committee, and upon motion, the matter was laid upon the table.

The following candidates at the annual examination, having attained the required standard of percentage of correct replies, were granted licenses to practice:

F. H. Lawther, 240 Wabash ave., Chicago.

A. J. Morris, New Holland, Edgar Co.

The papers of Mrs. J. F. Prentice were taken under advisement.

Adjourned.



## QUARTERLY MEETING, CHICAGO, JULY 9, 1890.

The STATE BOARD OF HEALTH met at the Grand Pacific hotel, Chicago, on Wednesday, July 9, 1890, at 10 o'clock a. m.

A notice had been issued calling for a meeting to be held at the office of the BOARD in Springfield, on Thursday, June 26, 1890. Drs. Mackenzie and Griffith and the Secretary, Dr. Rauch, only were present and, no quorum being present, the meeting adjourned for two weeks—to the present date.

Members present: Drs. Ludlam, Clark, Griffith and Williams, and the Secretary, Dr. Rauch. In the absence of the President, Dr. Ludlam was requested to preside.

The minutes of the meeting of May 1st and 2d, 1890, were read and, upon motion of Dr. Griffith, were approved as read. The Secretary presented his Quarterly Report, of which the following is a summary:

Cholera has been reported in the neighborhood of Jesireh on the Tigris, in the province of Diarbekir. It is, however, stated to the contrary that cholera has ceased in Persia and northern Mesopotamia and disappeared from the valleys of the Euphrates and Tigris. So far there has been nothing reliable with regard to its prevalence in Persia, Russia or Turkey. Several cases were reported as existing at Pueblo de Rugat, in southern Spain, May 13. This is a town of about 700 inhabitants in the province of Valencia, easily accessible from Mediterranean and eastern ports. Cases were reported from Albarda, Castillo, Valencia, San Felipe de Jativa, within the immediate neighborhood. Also near Oporto, Portugal, in Malaga, France and in Naples; but there has been no confirmation of these latter reports. The disease does not seem to spread rapidly. Up to June 15, out of one hundred cases there had been twenty deaths at Pueblo de Rugat. Seven deaths out of fourteen cases at Montichalvo, not far from Pueblo de Rugat. On account of the precautions taken, it will probably not extend much beyond its present limits. It may, however, and is, no doubt, a warning to us in this country to promote local sanitation and require vigilance at our quarantine stations.

*Chicago Drainage and the Pollution of Streams:*

The city council of Chicago has appropriated \$150,000 for the purpose of erecting additional pumps and providing for an increased dilution of sewage: but, owing to a misunderstanding between the authorities of the city of Chicago and the Canal Commissioners, no action has yet been taken in regard to increasing the pumping facilities.

In connection with this subject, the Secretary recently addressed the following communication to the President of the Board of Trustees of the Sanitary District of Chicago:

SPRINGFIELD, Ill., June 21, 1890.

DEAR SIR:—I am directed by the STATE BOARD OF HEALTH to request the Trustees of the Sanitary District of Chicago to take under advisement the propriety of furnishing such temporary relief to the District and to the people of the valleys of the DesPlaines and Illinois as may be feasible—pending the construction of the channel provided by law, by pumping such a volume of water through the canal as it may be practicable to carry therein, and add thereto such additional service *via* the DesPlaines River as shall make the total not less than 120,000 cubic feet per minute; the amount to be increased at the rate of from 12,000 to 14,000 cubic feet for each additional 100,000 of population in the Sanitary District that may drain to the Chicago River and branches. In furtherance of this purpose it is very important that you cause to be made, as soon as practicable, a comprehensive investigation and survey of the Illinois and Michigan Canal to determine its capacity, or to what extent its capacity may be increased. In this request the Board of Canal Commissioners also join.

The STATE BOARD OF HEALTH believes that the Sanitary District may, with great propriety, act in the premises, more especially as any scheme of temporary relief—which is now urgently needed—should be in harmony with the ultimate plan to be carried out. Such action by a body charged with the proper drainage of the District will be assurance to the people of the Illinois Valley and of the State, that all interests will be duly guarded.

It is hoped also that your Board will, as soon as possible, take up a full investigation of the question of the sewage product of Chicago, as a supplement to the work done by this BOARD in 1888-89 in tracing the effect of sewage into the DesPlaines and Illinois valleys after it leaves Chicago.

This BOARD is greatly interested in the investigation of all matters which pertain to flood waters upon the basin and about the Sanitary District, of the habits of the streams of the Illinois water-shed and of the effect upon the Illinois valley of the additional flow of water, from a sanitary standpoint.

For these reasons it urges the propriety of your obtaining full information upon all of these questions which profoundly interest the people of the various sections of the State outside of the Sanitary District, and which, as a whole, are of concern to about one half the population of the State.

This BOARD will co-operate, as far as practicable, as it is its duty to look after the sanitary interests of all concerned.

I herewith enclose a copy of a communication to the mayor and city council of the city of Chicago sent some time ago on the same subject.\*

I have the honor to be

Very respectfully yours,

JOHN H. RAUCH, *Secretary.*

*To Murry Nelson, Esq., President Board of Trustees, Sanitary District of Chicago.*

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\* See Proceedings of Meeting, February 13, 1890—page LXV.

The Trustees have now under consideration the suggestions contained in this communication.

The last quarter has been freer from so-called epidemic diseases than any similar period in many years.

Influenza seems to be extending over the whole world. In accordance with the BOARD's directions a circular of "Inquiry on Influenza" was prepared with the intention of securing information to elucidate unsettled questions regarding the etiology and history of the disease.

The steamship Avon from Merida, Yucatan, has been detained at quarantine at North Chandeleur Island, cases of yellow fever being reported on board June 22. The British ship Algonia from Rio Janeiro is reported detained at Delaware breakwater—said to have had several of her crew sick with yellow fever at Rio. The indications, however, are that we have not much to fear from yellow fever.

Notice has been received of a case of small-pox in Maine. On June 18th a case of discrete small-pox in a farmer 18 years of age (supposed to have been contracted from a tramp) was reported from Fountain Green, Hancock county. At no time in the history of the BOARD have so few reports of the existence of this disease been received.

Scarlet fever has been reported from Hallsville, DeWitt county, Cutler, Perry county, and Rockford.

Three fatal cases of diphtheria are reported from McHenry county. No further spread. There has been an outbreak at Fisher, Champaign county; also at Milton, Pike county. It is reported that there has been an epidemic of diphtheria in and around the village of Tremont, Tazewell county, for six months. One hundred cases with fifteen deaths. If a properly constituted health organization had existed at Tremont there is no doubt that the epidemic would have been cut short much earlier.

Many communications have been received on the subject of hydrophobia and complaints of the great number of dogs running at large. Inquiries have been received as to whether a township board of health can lawfully issue and enforce a proclamation looking to the destruction of dogs allowed to run at large. The Secretary replied that under the present provisions of the law there is no authority for such action by township boards.

The Secretary recommends that the BOARD take steps to secure legislation which will enable township boards to make and enforce rules for the protection of the community against preventable diseases, etc.

Three medical men have died during the last quarter who have been long and intimately identified with medical affairs in this State.

DR. S. R. HAVEN, May 4th, aged 63 years.

DR. WM. H. BYFORD, May 21st, aged 73 years.

DR. JOSEPH P. ROSS, June 15th, aged 62 years.

Work has been begun upon the next Report on Medical Education, and a circular letter has been sent to the various colleges asking for latest information.

Blanks in regard to rules for the transportation of the dead have been prepared in conformity with the rules adopted at the meeting of the BOARD September 27, 1889.

During the quarter there were received in the Secretary's office 1,948 written communications, besides the diplomas, letters of recommendation, and other papers pertaining to 278 applications for certificates. There were sent out during the quarter 2,362 communications, exclusive of 262 certificates and accompanying instructions. There have been distributed 1,798 copies of the last report on Medical Education, 157 Tenth Annual Reports, 206 of the previous annual reports, 2,000 circulars of "Inquiry on Influenza," to medical men of the State, requesting them to contribute such information concerning the disease as they have derived in their practice; 1,200 blanks for burial permits and undertakers' certificates, and the usual number of other publications.

Of the 262 certificates issued, 219 were to physicians upon diplomas of medical colleges recognized as in good standing in accordance with our Schedule of Minimum Requirements; five, to graduates who were required to supplement their diplomas by examination in literary branches, or by evidence of a satisfactory preliminary education; four to physicians who had practiced in the State ten or more years prior to July 1, 1877, and who had filed their applications prior to the taking effect of the new law; three upon examination; five duplicates upon proof of loss or destruction of the originals; twenty-three to midwives, graduates of recognized schools, and three to midwives upon examination. Certificates were refused to 16 physicians who were unable to comply with the law.

Respectfully submitted,

JOHN H. RAUCH, M. D.,

*Secretary.*

The Secretary's report was accepted and ordered spread upon the minutes.

Mr. L. E. Cooley, Chief Engineer of the Board of Trustees of the Sanitary District of Chicago, in response to an invitation, appeared before the BOARD. He stated that he thought the disposition of his Board was favorable towards doing something for the temporary relief of Chicago, at least before the World's Fair opened. There is some doubt as to whether it is permissible for the Board to do this temporary work—it certainly is not obligatory.

Dr. Rauch inquired the object of the Sanitary Commission.

Mr. Cooley replied that it was to provide for the disposal of the sewage of Chicago, but that it would not be possible to do anything this season in excavating; it would first be necessary to determine the channel so far as the engineering work goes, so as to begin proceedings to condemn land. The trustees hope to

begin work on the DesPlaines channel next spring, and in a manner designed for temporary purposes. Authority has just been received to survey the Illinois and Michigan Canal with this end in view.

Dr. Rauch expressed the opinion that the Canal Commissioners would prefer to deal with the Board of Trustees of the Sanitary District rather than with the present city council of Chicago.

Mr. Cooley said that the study of the water-shed would be discretionary with the Board. A study of the tributary streams and of dangers from overflow would soon be taken up by Mr. Ward. It may be necessary to have police supervision of the drainage area down as far, at least, as Morris. He proposes to ascertain how much filth is produced in the city and where it comes from, and to make a systematic study of distilleries and the stock-yards sewage. He thought these special producers of filth should be particularly looked after and their wastes treated before being allowed to run into the streams. The sludge at the "South Fork" was thick last week; the putrescible matter, of which there is from 40 to 60 per cent. in ordinary sewage, should be precipitated.

Dr. Rauch stated that the BOARD contemplated adopting a resolution to-day inquiring of the Health Commissioner of Chicago what progress had been made in providing precipitating basins, in prosecuting offenders, and offering the coöperation of this BOARD.

Mr. Cooley said he did not believe in restrictive measures for factories or public industries; the city should promote manufacturing enterprises.

The BOARD adjourned until two o'clock.

AFTERNOON SESSION.—Present: Drs. Clark, Griffith, Ludlam, Williams and the Secretary, Dr. John H. Rauch. Dr. Ludlam in the chair.

Upon motion of Dr. Clark, seconded by Dr. Williams, the following preamble and resolutions were adopted:

WHEREAS, In order to prevent the unnecessary pollution of the south fork of the south branch of the Chicago River by the slaughtering and rendering establishments draining into the same; and

WHEREAS, A movement was inaugurated some time ago to prevent such pollution of the water: therefore, be it

*Resolved*, That the Secretary of this BOARD be and he is hereby instructed to communicate with the Health Commissioner of the city of Chicago to

ascertain what progress has been made in that direction, and to tender to said Commissioner the coöperation of this BOARD.

*And be it further resolved,* That, if necessary, the Secretary shall request the State's Attorney to prosecute all delinquents.

In the matter of the complaint of W. P. Black and others against Dr. G. H. C. Fricke, of Oak Park, the BOARD declined to take action.

Consideration of the cases of Drs. D. A. Crawford, Albert J. Roe, Francis Czewski, G. F. Dougherty, was postponed.

The Secretary, Dr. Rauch, requested leave of absence for six weeks to go abroad in the interest of the further study of the utilization of sewage.

Upon motion of Dr. Griffith, duly seconded, the request was granted.

The Auditing Committee reported that it had examined the accounts and vouchers submitted, amounting to \$3,373.13, found the same correct and recommended that they be paid.

Reference was made by the Secretary to the influence that the BOARD had exerted in raising the standard of medical education during the past ten years—since the publication of its Minimum Requirements.

He said: "If we stick to our text, we will carry the Northern States in establishing the rule of three courses of lectures. It will soon be necessary to increase rather than lessen the requirements." He also stated that the medical schools and the State Boards of Medical Examiners of the States of Ohio, Indiana, Illinois and Iowa had adopted the rule of four years of study and three courses of lectures. New York, New Jersey, Virginia, West Virginia, Minnesota, North Carolina, South Carolina and Alabama have strict laws of examination. The law recently passed in New York allows no examination for degree unless three courses of lectures have first been taken. The Missouri colleges are generally complying with the rule of the BOARD requiring a three years course of lectures. 'We were the pioneers and we can carry out the rule of four years of study.'

The Secretary reported that a certificate had been issued to Dr. E. C. Dunn, of Rockford, upon years of practice, it being understood he was not to go out traveling and practicing.

Also that W. W. Ireland, of Unity, Alexander county, had been examined and a certificate issued to him.

The death of Sir Edwin Chadwick was also mentioned by the Secretary, and a brief outline of his career given.

The BOARD adjourned.

# QUARTERLY MEETING, CHICAGO, NOVEMBER 25, 1890.

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The regular quarterly meeting of the ILLINOIS STATE BOARD OF HEALTH was held at the Grand Pacific hotel, Chicago, Tuesday, November 25, 1890.

Present—Dr. W. A. Haskell, President; Drs. B. M. Griffith, W. R. Mackenzie, D. H. Williams and the Secretary, Dr. John H. Rauch.

The minutes of the last meeting, held July 9, 1890, were read and approved.

The application of Dr. Lydia S. I. Alma for a certificate coming before the BOARD, the Secretary said that he had declined to take the responsibility of issuing a certificate to Dr. Alma, she having presented a diploma from the Physio-Medical College, of Cincinnati, Ohio, dated February 3, 1878, signed by Prof. Alva Curtis, dean, who during the latter years of his life, had issued a number of diplomas illegally, on which account the BOARD has heretofore refused to recognize the diplomas of said school. The Secretary also called attention to certain advertisements of Dr. Alma's in which she claims to "treat all chronic diseases successfully."

Dr. Alma appeared in person and said it was not her object to practice medicine, except in cases of emergency, but to teach. She also said that her advertisement had been published by her husband after permission from a clerk in the Chicago Health Office.

After consideration of the subject, it was

*Ordered*, That this BOARD declines to issue a certificate to Mrs. Lydia S. I. Alma, because of the fact that owing to irregularities in the granting of diplomas by Dr. Curtis during the last few years of his life, the diplomas of the Physio-Medical College of Cincinnati,—of which Dr. Curtis was dean, and Dr. Alma is a graduate—have not been recognized by this BOARD.

The Secretary presented his quarterly report, which was received and ordered to be printed in the published proceedings of the BOARD.

#### SECRETARY'S QUARTERLY REPORT.

The general health of the State has been very good. No class of diseases has been particularly prevalent. Outbreaks of diphtheria have occurred at Peoria, Bloomington, Paxton, Quincy, Clinton, Alton, Centralia, Worden, Roodhouse, Dallas City and Chicago. Where the disease has spread it was owing, mainly, to municipal neglect in enforcing the rules and requirements of this BOARD.

Scarlet fever of a mild type has been prevailing at Quincy, Monarch, Sumner, Decatur and Alton.

Typhoid fever has been reported near Urbana, Clayton, Carthage and Centralia. The outbreak near Urbana was especially virulent in a family of eleven, nine having died, and the Secretary is satisfied that if the proper sanitary precautions had been promptly taken, the mortality would not have been so great. There has not been as much of this disease as usual.

On September 11, four persons were poisoned at Macomb from eating custard. It was supposed that the vanilla flavoring extract was the cause. Prof. Long made an analysis of the extract, but found nothing deliterious in it and is of the opinion that it was a case of ptomaine poisoning. No fatal results followed.

#### *The Necessity of Making Diphtheria a Quarantinable Disease at the Maritime Ports:*

While returning to the United States on one of the most popular lines of ocean steamers, the Secretary found that a death from diphtheria had occurred in the steerage—a child six years old. The death occurred after the vessel had been out six days and no special precautions were taken to prevent the spread of the disease.

This question of quarantining diphthéria has been discussed by sanitarians before, but no definite results have been reached. The great number of deaths occurring in the United States from this disease renders it very important, if possible, to prevent its introduction and spread. It must be borne in mind that immigrant passengers after leaving the ships are distributed to different portions of the country. These carry with them the germs of the disease. It is not claimed, however, that a rigid quarantine will prevent the disease in the United States but there is no doubt that it would diminish the number of cases. Observations made on the steamer showed that not enough care was taken in the inspection of immigrants, so far as their vaccinal status is concerned. It was a source of gratification, however, to learn one day that the ship's surgeon was engaged in vaccinating and revaccinating the steerage passengers shipped at Southampton.



*The Medical Practice Act:*

At no time since the organization of the BOARD has there been such a rush of medical men into the city of Chicago as during the past quarter. This obtains not alone as to practitioners from other states, but to those of this State as well, and a number who had left the city have returned.

More than two-thirds of the certificates issued during the quarter were to parties who wished to practice in Chicago, And never before in the same length of time has there been so many professional frauds attempting to obtain a foot-hold in that city. It is plainly evident that the increase of population, and especially the coming World's Fair are the attraction. Eleven applicants were refused licenses for the reason that they had diplomas from schools not in good standing, their professional records had been tarnished elsewhere, or they could not comply with the requirements of the BOARD. The anxiety of these people to get to Chicago is also manifest in the incorporation of so-called medicine companies, medical associations and dispensaries, thus taking advantage of the lax laws in this respect that obtain in this State as a means of evading the Medical Practice act.

It is undoubtedly the duty of this BOARD to do all it can, not alone to protect the citizens of Chicago from this class of frauds, but the visitors to the World's Fair as well.

*Office Work and Miscellaneous:*

During the quarter, there were received in the Secretary's office 1,775 written communications, exclusive of diplomas submitted for verification, affidavits, letters of recommendations, etc., pertaining to 124 applications for certificates entitling to practice medicine and to 12 applications from midwives. There were sent out 733 written communications, 87 copies of the Tenth Annual Report, 240 copies of the Report on Medical Education, 1,520 preventable disease circulars and other publications of the BOARD.

There were issued 97 certificates based on diplomas of medical colleges which conform to our schedule of Minimum Requirements: ten to graduates who were required to supplement their diplomas by evidence of proficiency in the subjects or branches omitted by their respective colleges and six duplicates upon proof of loss or destruction of the originals: eleven applications were rejected because of inability to comply with the law.

Certificates were also issued to seven midwives, licentiates, and to three upon examination. Two were rejected. One itinerant license fee of \$100.00 was also refused.

Letters of inquiry have been more than usually numerous from medical colleges and from Boards of Medical Examiners with regard to the status of medical colleges.

Respectfully submitted,

JOHN H. RAUCH, M. D., *Secretary*.

The accounts for the quarter, amounting to \$2,610.36, and vouchers accompanying the same, were referred to the Auditing

Committee, who reported that they had examined the same, found them correct and recommended that they be paid, and it was so ordered.

In the matter of Dr. G. Boardman Walker's application for a certificate, the Secretary read the report of Dr. Walker's examination before the BOARD at the June, 1888, meeting, in which he acknowledged that he had never attended lectures at any college, but that questions had been forwarded to him by mail to which he had returned his answers, also by mail, and accompanied by a thesis. A diploma and a gold medal were sent him by the Eclectic Medical College of Pennsylvania.

Upon motion it was—

*Ordered*, That the BOARD declines to issue its certificate to Dr. G. Boardman Walker, in accordance with section 11 of the Act to Regulate the Practice of Medicine in the State of Illinois.

Upon examination of the papers on file in the case of Mrs. Rebecca Keck, and after consideration and discussion of the same, it was—

*Ordered*, That no certificate be issued to Mrs. Rebecca Keck.

Attention was called to the Cosmopolitan Dispensary, the Dexter Medicine Co. and the International Medical Association, and upon examination and consideration of the papers, advertisement, reports and affidavits in these cases on file, it was suggested that a committee be appointed in Chicago to look after the matter.

Owing to certain evidence on file in the office of the BOARD against the Iowa Eclectic Medical College, and to the fact that said college is not recognized as in good standing by the Iowa State Board of Medical Examiners, it was

*Resolved*, That the diplomas of the Iowa Eclectic Medical College be not recognized by this Board.

The case of Henry G. Wildman being taken up for consideration, it was shown—

That he advertises to be in three separate cities—New York, Philadelphia, and Chicago—at one and the same time.

That he claims to have cured persons whom he has never seen.

That at Minneapolis he advertised as a "Catarrh Specialist" and two sound men were told in his office that they had catarrh.

That a man in West Chicago who had an aneurism was treated for catarrh.

The Secretary suggested that a special meeting be held in Chicago to consider the Wildman case and other similar cases. He said arrangements were being made with the Chicago Medical Society whereby it would take the initiative in the prosecution of such cases, and he suggested that a similar arrangement might be also made with the Chicago Medico-Legal Society.

The similar cases of Dr. A. B. Albaugh and John Danis were referred to and attention was called to the illegal and quackish methods of Dr. L. E. Miley, an itinerant.

The Secretary stated that one Isaac Sher had presented a certificate in the Russian language—with a translation of the same—from which it appeared that he had been a licensed practitioner of medicine in Russia, and upon his furnishing the usual affidavit, letters, etc., a certificate was issued to him.

Afterward a similar Russian certificate was presented by one John Train. A careful and exact translation of the same revealed the fact that the said certificate does not purport to grant the right to practice medicine, except as an "assistant physician and surgeon."

The Secretary, therefore, suggested that Isaac Sher be notified that his certificate is withdrawn by the BOARD, and that if he desires to continue in practice he must pass an examination before the BOARD. Also that John Train be notified that in order to obtain a certificate entitling him to practice medicine he must pass the BOARD's examination.

Upon motion it was so ordered.

The question of the recognition of the diplomas of the Indiana Eclectic Medical College coming up for consideration, the office correspondence in relation thereto was read and attention was called to the action of the National Eclectic Medical Association concerning the same. After discussion it was, upon motion,

*Ordered*, That the diplomas of the Indiana Eclectic Medical College—as at present organized—be not recognized by this BOARD.

The BOARD adjourned.

FINANCIAL STATEMENT  
OF THE  
ILLINOIS STATE BOARD OF HEALTH,  
FOR THE  
FISCAL YEAR ENDED SEPTEMBER 30, 1890.

*State Board of Health—Dr.*

<i>To State Treasurer:</i>		
Balance of Regular Appropriations, October 1, 1889.....	\$8,070 00	
Balance of Contingent Fund, available October 1, 1889.....	10,000 00	
Regular Appropriations, taking effect July 1, 1890.....	9,000 00	
		<u>\$27,070 00</u>

*To Treasurer of Board:*

Balance on hand, October 1, 1889.....	\$82 27	
Office receipts for the year ended September 30, 1890.....	3,114 00	
		<u>3,196 27</u>
		<u>\$30,266 27</u>

*State Board of Health—Cr.*

By payment on all accounts, as per itemized statement.....	\$12,253 51	
Unexpended balance of Regular Appropriations October 1, 1890.....	7,239 70	
Unexpended Contingent Fund, October 1, 1889.....	10,000 00	
Unexpended balance in hands of Treasurer of BOARD, October 1, 1890.....	723 06	
		<u>30,266 27</u>

ITEMIZED STATEMENT OF EXPENDITURES  
OF THE  
ILLINOIS STATE BOARD OF HEALTH,  
FOR THE  
FISCAL YEAR ENDED SEPTEMBER 30, 1890.

Salary of Secretary.....	\$3,000 00	
Clerical services.....	4,746 66	
Expenses of BOARD and Secretary, attending meetings and making sanitary investigations.....	1,181 25	
Postage.....	317 81	
Expressage.....	322 52	
Telegrams.....	134 05	
Telephone.....	60 00	
Printing.....	738 15	
Medical and sanitary journals, books and newspapers.....	205 97	
Services in connection with Medical Practice Act.....	500 00	
Legal services and costs in connection with suits.....	174 40	
Chemical analysis of water.....	50 00	
Dues, National Conference State Boards of Health.....	10 00	
Ice.....	30 00	
Laundry—office towels.....	12 00	
Messenger and janitor.....	720 00	
Sundries.....	20 70	
		<u>\$12,253 51</u>
Total expenditures from Regular Appropriations.....	\$9,780 39	
Total expenditures from Office receipts.....	2,473 21	
		<u>\$12,253 51</u>

REPORT OF THE TREASURER  
OF THE  
ILLINOIS STATE BOARD OF HEALTH,  
FOR THE  
FISCAL YEAR ENDED SEPTEMBER 30, 1890.

*To the President and Members of the Illinois State Board of Health:*

GENTLEMEN:—Your Treasurer begs leave to present the following report of the receipts and expenditures of his office for the period commencing with the date of his last Annual Report, October 1, 1889, and ending September 30, 1890:

*General Account, Dr.*

Balance to credit of general account, October 1, 1889 .....	\$82 27
Received from the Secretary, office receipts for the fiscal year ended September 30, 1890.....	3,114 00
<b>Total accountability.....</b>	<b>\$3,196 27</b>

*General Account, Cr.*

Moneys paid out by order of the BOARD on vouchers duly audited, approved and on file for indebtedness accrued during the fiscal year ended September 30, 1890:

Secretary's services in connection with the Medical-Practice Act .....	\$500 00
Miscellaneous printing and stationery .....	749 15
Expenses of BOARD and Secretary, attending meetings and making sanitary investigations .....	330 87
Postage.....	208 81
Medical and sanitary journals, books and newspapers.....	205 97
Legal services and expenses in connection with suits.....	163 40
Expressage.....	88 45
Chemical analyses of water.....	50 00
Telegrams.....	40 60
Clerical services.....	30 00
Ice.....	12 00
Dues—National Conference State Boards of Health.....	10 00
Fee returned—certificate revoked.....	5 00
Sundry incidental office expenses.....	42 95
<b>Total expenditures.....</b>	<b>\$2,473 21</b>
Balance in my hands September 30, 1890.....	723 06
	<b>\$3,196 27</b>

All of which is respectfully submitted,

A. L. CLARK, *Treasurer.*

Audited and approved:

W. R. MACKENZIE, {  
B. M. GRIFFITH, { *Auditing Committee.*



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**ABSTRACT OF PROCEEDINGS.**

**OF THE**

**ILLINOIS STATE BOARD OF HEALTH, 1891.**

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## MEMBERS AND OFFICERS OF THE BOARD—1891.

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W. A. HASKELL, M. D., Alton, *President*.

\*NEWTON BATEMAN, LL. D., Galesburg.

R. LUDLAM, M. D., Chicago.

A. L. CLARK, M. D., Elgin, *Treasurer*.

W. R. MACKENZIE, M. D., Chester.

D. H. WILLIAMS, M. D., Chicago.

B. M. GRIFFITH, M. D., Springfield.

F. W. REILLY, M. D., Chicago.

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JOHN H. RAUCH, M. D., Chicago, *Secretary*.

† F. W. REILLY, M. D., Chicago, *Secretary*.

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\* Resigned, September 27, 1891. Dr. Reilly appointed to fill his unexpired term.

† Elected to succeed Dr. Rauch, resigned June 30, 1889.



BSTRACT OF THE PROCEEDINGS  
OF THE  
ILLINOIS STATE BOARD OF HEALTH  
AT THE  
MEETINGS DURING THE YEAR 1891.

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ANNUAL MEETING, SPRINGFIELD, JANUARY 29, 1891.

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The Fourteenth Annual Meeting of the ILLINOIS STATE BOARD OF HEALTH was held at its rooms in the Capitol, at Springfield, on Thursday, January 29. Those present were Dr. W. A. Haskell, President, Drs. R. Ludlam, A. L. Clark, W. R. Mackenzie, B. M. Griffith and D. H. Williams and the Secretary, Dr. John H. Rauch.

The Secretary presented his Quarterly Report for the quarter ended December 31, 1890, of which the following is a summary:

Most of the information and the earliest in regard to outbreaks of contagious and infectious disease has been obtained from the newspapers. In very many cases Preventable Disease Circulars are sent to physicians or to local authorities several days before the BOARD receives any notification from them of the existence of infectious diseases in their localities.

Seven cases of typhoid fever occurred in one family of nine children with two deaths. First case developed September 29th. Location of house and other buildings, style of living, habits, etc., were good. About September 20, the oldest son came home sick, from a large city. He had been

complaining for some time. Was first seen by the physician on September 29, when he had a well-marked case of typhoid fever. His case was a mild one and made a good recovery.

Case 2. Twenty days after case one came home, a brother, sixteen years of age, was taken with a typical attack and was seriously sick for 27 days, but made a good recovery.

Cases 3 and 4. Two girls, aged five and seven, taken while case two was sick—typical cases lasting 21 days, followed by recovery.

Case 5. Girl, aged 14, was taken during the illness of cases 3 and 4. Went to bed after complaining for three weeks. On December 24th, three days after going to bed, she got up to stool; discharged about three quarts of blood with very little coagula; fainted and was put back in bed; blood continued to pass from the bowels and death ensued in a few hours.

Case 6. Young woman aged 20, taken during the illness of case 5. Typical case. Hemorrhage on fifteenth day and died on nineteenth day.

Case 7. No account of this case.

The physician reporting these cases says nothing about having disinfected the dejecta of the first case, nor of having taken any precautions whatever for preventing the spread of the disease to other members of the family. There seems to have been no doubt as to the diagnosis of the first case, yet, so far as anything appears to the contrary, no step was taken to prevent the communication of the disease to other members of the family. In case 5, the hemorrhage and death might be attributed, first, to the fact that the patient was not put to bed when she was taken sick, but was allowed to walk about for three weeks; second, to the fact that she was allowed to get out of bed to go to stool. The fact that hemorrhage occurred only three days after she took to bed shows that the disease had existed for some time and that the patient should have been in bed. As is a well-settled rule in typhoid fever, no patient with the disease should be allowed to leave the bed or exert strength until convalescence sets in.

Diphtheria seems to be decreasing.

Scarlet fever is increasing, but is generally of a mild type. Otherwise the general health is very good.

Small-pox is very prevalent in Texas. It has also been reported in Pennsylvania, Ohio and West Virginia. It made its appearance in Girard, in this State, in families who contracted the disease at San Antonio, Texas. There are five cases near Girard. The disease was brought into the State about January 18. Vaccine was promptly sent to the infected locality, with circulars of instruction. The authorities have acted promptly in isolating the cases and the Drs. Cowan vaccinated and revaccinated all who were exposed. It is too soon yet to tell whether there will be any more cases or not.

Cholera seems to be abating everywhere except in Syria. It is thought by the French authorities to be extinct in Spain and the French observation stations at Cerbère and Hendaye on the Spanish frontier have been abandoned. From all information obtainable from Syria it appears that

in a population of 600,000 there were 6,000 deaths during the months of October, November and December. It is generally conceded that the persistence of the disease in Syria, at this season of the year, is a menace to Europe for the coming spring and it is feared that it will find an entrance into European Turkey by the usual routes of travel and also go northward to the Black Sea and in this way be introduced into Russia. The menace to Europe is all the greater because, while the Turkish authorities establish cordons and quarantine, no effort is made to improve the sanitary conditions of the cities, towns and villages. The same is true of many other parts of the world when pestilence threatens or attacks a community: methods of doubtful or no value are tried when it is too late to do any thing else. It is the lazy way of trying to prevent disease. If Turkey was a civilized and well-cultivated country, furnished with good roads for communication between the different towns and villages, something might be expected from the establishment of sanitary posts and the inspection of travelers. But at present the traveler in that country goes where he pleases, irrespective of roads, often avoiding sanitary posts, especially when by going to them he is obliged to pay fees to corrupt officials.

The Secretary attended the meeting of the American Public Health Association at Charleston, S. C., December 16, 17, 18 and 19, 1890. He introduced the following resolution, which was unanimously adopted by the Association:

WHEREAS, Diphtheria, scarlet fever, typhoid fever, measles and varicella are frequently introduced into this country by immigrants, owing mainly to the fact that at some of the maritime ports no precaution whatever is taken to prevent their introduction: therefore, be it

*Resolved*, That in the opinion of this Association said diseases should be placed on the list of quarantinable diseases.

At the same meeting there was introduced by Dr. Plunkett, Secretary of the Tennessee State Board of Health, the following resolution:

WHEREAS, Owing to the fact that cholera has prevailed during the past summer in Europe, Asia and Africa; and,

WHEREAS, There is a possibility that it may be introduced into this continent during the coming year: be it therefore

*Resolved*, That all maritime quarantine authorities be urged to continue special care to prevent its introduction, and that all other health authorities continue to do everything in their power to improve the sanitary condition of the country.

A committee was also appointed by the Association to confer with the directors of the Columbian Exposition with regard to having a separate building for a sanitary exhibit and to coöperate with the directors in promoting it and making it a success.

The Secretary suggests that a committee of this BOARD be also appointed for a like purpose.

There were issued during the quarter 109 certificates authorizing the practice of medicine in the State: 50, to graduates of medical colleges that conform to our Standard of Minimum Requirements: 15, to graduates who

were required to supplement their diplomas by evidence of proficiency in the subjects or branches omitted by their respective colleges; one, upon years of practice, and three duplicates upon proof of the loss or destruction of the originals. Thirteen applicants were rejected because of inability to comply with the law and the requirements of the BOARD.

Certificates were also issued to 29 midwives: 23 being upon diplomas or licenses; 4, upon examination, and 2, upon years of practice. Two applicants were refused license.

During the year 1890, there were issued 535 original and 16 duplicate certificates. Of the 535 original certificates, 527 were to graduates of medical colleges; 5, to practitioners of ten or more years' practice prior to July 1, 1877, and 3, to candidates upon examination. Of the 527 original certificates issued to graduates of medical colleges, 30 were upon diplomas of colleges that had not complied with the requirements of the BOARD with regard to preliminary education, and these diplomas were required to be supplemented by examination of the applicants on the branches or subjects omitted by their respective schools or by evidence of graduation from a scientific or literary institution. A license was refused to one itinerant. Fifty-one applications were refused owing to the inability of the applicants to comply with the terms of the Medical-Practice Act or the rules of the BOARD based thereon.

During the same period 93 certificates were issued to midwives: 79 being to licentiates; 11, upon examination, and 3, upon years of practice in the State. Twenty applicants were refused, mainly because of failure to pass the prescribed examination.

During the year 1890 there were received in the Secretary's office 6,499 written communications and 4,611 were sent out—1,285 of these having been received and 600 sent during the last quarter; 2,143 Tenth Annual Reports were distributed, 2,560 copies of the Sixth Report on Medical Education, 3,605 Preventable Disease Circulars, 2,000 circular of inquiry relating to influenza, 1,200 burial permit blanks and undertakers' certificates and a large number of other reports and publications of the BOARD—including annual and quarterly reports, circulars on small-pox, vaccination certificates, etc.

The report was accepted and ordered placed on file.

In compliance with the suggestion of the Secretary, it was ordered that the President appoint a committee of five to co-operate with the committee appointed at the last meeting of the American Public Health Association to confer with the directors of the Columbian Exposition with regard to having a separate exhibit and to coöperate with the directors in promoting it and making it a success.

The resolution introduced by the Secretary at the meeting of the American Public Health Association, relating to placing

diphtheria, scarlet fever, typhoid fever, measles and varicella on the list of quarantinable diseases was endorsed by the BOARD.

Also the resolution passed by the association with regard to preventing the introduction of cholera.

The Secretary read a letter from Messrs. Johnson and Hering, attorneys for George E. Harrison.

Upon motion of Dr. Mackenzie, it was ordered that the Secretary be instructed to obtain the opinion of the Attorney General as to whether the BOARD is warranted in refusing to issue a certificate to George E. Harrison.

The Auditing Committee reported that it had examined the accounts of the quarter, amounting to \$2,446.73, and the vouchers submitted therewith; that they found the same correct, and recommend that they be paid.

Upon motion the BOARD adjourned subject to the call of the President.





# QUARTERLY MEETING, CHICAGO, APRIL 23-24, 1891.

The regular quarterly meeting of the ILLINOIS STATE BOARD OF HEALTH was held at the Grand Pacific hotel, Chicago, April 23-24, 1891.

Present: Drs. R. Ludlam, A. L. Clark, W. R. Mackenzie, B. M. Griffith and D. H. Williams and the Secretary, Dr. John H. Rauch.

Upon motion of Dr. Williams, Dr. Clark was called to the Chair in the absence of the President.

The minutes of the meetings of November 25, 1890, and January 29, 1891, were read and approved.

The Secretary presented his quarterly report, which was received, read and ordered to be spread upon the records.

## SECRETARY'S REPORT FOR THE QUARTER ENDED MARCH 31, 1891.

The public health for the first two months of the quarter was unusually good, but the death rate for March was higher than was ever known before in this State. This was especially true of Chicago. March is always a hard month on those affected with pulmonary diseases, owing to the fact that the earth absorbs heat much faster than the water, and the March wind in Chicago is from the northeast, causing the air to be chilly and raw. The following table will explain the situation:

### METEOROLOGICAL RECORDS.

CHICAGO.	Mean temperature.	Highest temperature.	Lowest temperature.	Excess of temperature.	Deficiency of temperature.	Days in which rain or snow fell.....	Wind.....	Mortality.....	Consumption.	Acute lung diseases.....
December, 1890.....	30.5	53	8	60	0	11	S. W.	1,700	.....	476
January, 1891.....	30.2	54	10	24	0	16	S. W.	1,990	159	476
February, 1891.....	28.6	58	8	61	0	14	S. W.	1,924	173	405
March, 1891.....	30.6	57	7	0	111	23	N. E.	3,405	236	1,066
SPRINGFIELD.										
December, 1890.....	31.	60	14	49	0	4	N. W.	.....	.....	.....
January, 1891.....	32.4	54	1	211	0	12	N. W.	.....	.....	.....
February, 1891.....	31.4	67	5	3	0	16	N. W.	.....	.....	.....
March, 1891.....	33.8	65	2	0	190	22	W.	.....	.....	.....

The effect of the meteorological conditions upon life is more marked than any I have ever observed in that city for nearly a quarter of a century. This, in addition to the presence of la grippe, was the cause of the great mortality.

In February, both at Chicago and in Springfield, the temperature was lower than at any time for four months and the fluctuations of the thermometer greater. The excess of the temperature at Chicago in January was 214 degrees, and 61 degrees in February, while at Springfield it was 211 degrees in January and 3 degrees in February. In March the temperature at Chicago was nearly as low as in January, with a greater range. In March the temperature at Chicago was 111 degrees lower and 190 degrees lower at Springfield than the average of the period since the Signal Service was established.

Rain fell 22 days in March at Chicago, and the same number of days in Springfield. The prevailing wind at Chicago in March was northeast and at Springfield southwest.

Taking everything into consideration, it will be seen that the meteorological conditions during March were very unfavorable to life. These conditions not only affected the respiratory organs, but all chronic diseases, affecting infancy and old age most.

The recrudescence of the grippe in almost every part of the world was one of the marked features of the last quarter. The general vitality at this time seems to be lower than usual, but it is hoped that with milder and more equable weather many of the diseases that have been rife recently will soon disappear.

Cases of yellow fever are arriving at Eastern ports unusually early, also at the Gulf ports, and there is a possibility of this disease finding a lodgment later in the season.

#### *Cholera:*

For about a month during the past winter, no new cases of cholera occurred in Syria, but recently another outbreak has occurred at Alleppo and some ports of Asia Minor, thus threatening its possible extension into Europe and thence to different parts of the world. In view of this, and of the fact that typhus fever has been recently introduced in New York, it is the duty of this BOARD to urge municipal sanitation with all possible vigor.

#### *Small-Pox:*

For nearly a year there had been no small-pox in Illinois until early in January a family that had removed from South Otter township, Macoupin county, Illinois, returned to the county, bringing with it the germs of small-pox. With the family came a young man, formerly a resident of the township, who went to his own home, the family going to another house. Four of the family and the young man were taken with the disease, thus establishing two foci of the disease, and before its nature became known 23 persons were exposed. Of these, 14 were residents of the two infected houses, but being promptly vaccinated with good virus they had

mild varioloid instead of small-pox. A child and a man of another family, who had vaccinated himself with inert virus, suffered from small-pox. The remaining 7, who were exposed several days later than the 14, escaped the disease on account of the virus taking. The 14 that had varioloid would have had small-pox had they not been promptly vaccinated. There were two deaths from the 7 cases of small-pox and 16 of varioloid. But for the prompt action of the BOARD and of the local authorities in vaccinating and revaccinating and enforcing thorough isolation, the disease would undoubtedly have caused greater loss of life.

On March 29 a man from St. Louis was taken sick at the New York Lodging House in Chicago. On Monday he was confined to his bed. On Tuesday he applied to the Cook County Agents' office, and was sent to the county poor house at Dunning. That night, March 31, an eruption appeared which was recognized as small-pox. The patient was at once isolated. The 1500 inmates of the poor house were vaccinated and all precautions taken to prevent the spread of the disease. The prompt action of the poor house physicians deserves commendation.

Early in March, a colored man came from St. Louis to his home in Sparta, Ill., where in a few days he had an attack of what was probably varioloid. Late in March, two children of this man were taken down with confluent small-pox. On April 9 or 10, the sister-in-law of the man was taken with varioloid. These cases were isolated and vaccination and revaccination practiced in the neighborhood. No deaths and no new cases up to April 21.

#### *Diphtheria:*

Diphtheria appeared in LeRoy in December, 1890, and continued until January 15, 1891. There were about a dozen cases with 7 deaths. The disease was most prevalent among children under six years of age and in several cases there was great malignancy, some deaths being from the sequelae of the disease. The outbreak of the disease caused the citizens to have a board of health appointed and a physician selected as health officer. On February 11, the health officer's attention was called to some suspicious cases: these were investigated and quarantined, and the houses placarded, thus preventing the spread of the disease. Much inconvenience was caused and probably several cases resulted through the neglect of physicians to report their cases.

The epidemic of diphtheria that prevailed in Bloomington during the winter subsided about April 10.

Malignant diphtheria was reported at New Palestine, April 14.

On April 17 it was reported to the Secretary that a public funeral had been held over the body of a child, dead of diphtheria, at Anchor, the coffin being opened in the church. Other cases developed subsequently at the place.

Diphtheria has occurred also at Troy Grove, Bensonville, Mascoutah and Alton.

*At Dixon:*

On January 29, 1891, just after the close of a short mid-winter vacation, a pupil in the Normal School of Dixon, Ill., a young man who spent his vacation at his home in Iowa, was taken sick with diphtheria. There were some cases of the disease at his home and he was exposed to it. The second case in the school was the room-mate of case 1. The third and fourth cases soon occurred on the same floor with case 1. The cases were not isolated in any way and other pupils in the school visited the sick. Other cases developed about the school, until finally the north and south buildings became infected. At present the few (six) mild cases are isolated in the north end of the north building and proper precautions are being taken to prevent other cases. There is no reason to suspect that any of the cases originated otherwise than by personal contact with the sick or with their wearing apparel.

The general sanitary conditions of the buildings and grounds are not good, however. A large sewer runs through the grounds about 20 ft. west of the buildings. Within a few feet of the sewer are three pumps, one for each building, each pump being about 40 ft., running down through gravel. About forty feet from the south building pump is a privy, not much used. There is another privy about fifty feet from the center building pump. A third privy is on high ground that slopes directly to the north building pump 125 or 150 ft. away. Inasmuch as the school buildings have artesian water supply, and as both the privies and the sewer are dangerously near to the pumps, these should be closed and the privies should be removed. The cellar floors of the buildings should be cemented. At present the floors are of native gravel. Some of the ventilating pipes stop within two feet of and below the top of the second story windows. These should be run to the top of the house. The water closet in the basement of the north building is flushed by a constant stream, but has a very offensive odor. The closet in the third floor of the north building has been cut off. It should be re-opened and provided with flush traps—as in the south building. The buildings are heated by steam. The lodging portions of the building are divided into suites of two rooms each, as a rule, each suite being for two occupants. The cubic area and ventilation of the rooms and suites are imperfect and too small. A trough system water closet in a small and illy ventilated room on the third floor of the north building was closed soon after diphtheria broke out in the school. The pipe from the closet was cut off and sealed near the junction with the main sewer. This closet could scarcely have had anything to do with the spread of the disease, and it should be re-opened, or, better still, another closet opened in a well ventilated room on the same floor. The trough system closet is bad for a school building, since it teaches habits of negligence, and of dependence upon others for the first principles of cleanliness. In the north building is a small printing office, with water, furnished with a ten-inch escape pipe, into which empties the closet pipes of the building. The water is sufficient to keep these pipes free, and

thus the drainage is ample, the fall to the Rock river, 400 yards away, being sufficient to insure against clogging of the sewer.

While these conditions have evidently had nothing to do with the diphtheria in the schools, they are mentioned because of their possible connection with future outbreaks of disease.

#### *Scarlet Fever:*

Scarlet fever of a severe type was reported at Lacon, January 29: at Riverside, February 2 and at Adrain, February 4. During the first ten days the disease at Adrain was severe and several deaths occurred. The schools were closed and public meetings prohibited.

There have been also outbreaks of scarlet fever at La Grange (March 1-30,) at Lake City (February 1 to April 20) and at Lawrenceville, Knoxville, Alton, Good Hope, Griggsville, Millstadt and Ferris.

#### *Erysipelas at Auburn:*

Dr. B. B. Griffith, who made the inspection for the BOARD, reports: "Upon visiting Auburn, I secured the following information from the physicians relative to the disease which has recently prevailed there with such marked fatality. The first case of this peculiar illness occurred about the middle of February in an elderly lady, who had been for many years in delicate health. The disease manifested itself in the throat, but nothing of a serious or alarming nature was anticipated, as she had on several occasions previously suffered from apparently the same trouble. Notwithstanding the same treatment as had formerly proven successful, the case terminated fatally in a few days.

"The husband of this lady was the next person taken sick: his was an unquestioned case of phlegmonous erysipelas, involving the face, neck and upper portion of the chest. The case terminated fatally after an illness of about 48 hours' duration. An elderly lady, who was with the first person, was the next one taken sick. Her illness began very soon after returning home; she had erysipelas, to which she was predisposed: it affected the face. She was sick about ten days and was recovering from the erysipelas when pneumonia as a complication caused death.

"At the same time a step-son of the gentleman at whose house the first case occurred was taken sick with throat trouble and glandular enlargement, very similar to that of the first case: this patient lived only four or five days. The next case was the son of the lady who was predisposed to erysipelas. He also had erysipelas: was sick about two weeks: recovered. An elderly gentleman, who had for a few days nursed this last case, was the next one taken down. In a day or two after returning to his home, he had a very severe chill, followed by high fever and a bad sore throat, which the physicians pronounced diphtheria: he only lived about eight days. There was another death—that of a nurse who cared for the woman who had facial erysipelas, but her death was from traumatic peritonitis: she was sick about a week.

"At one time there were four cases of sickness in the house where mother and son had erysipelas. These cases were all similar, beginning with a chill followed by high fever and sore throat; none proved fatal.

"As to the exact nature of this trouble, there seems to be considerable difference of opinion between the physicians. One regards it as highly contagious and traces all the cases to the one original case. The other physician thinks it is not epidemic but rather an endemic non-contagious disease, more or less intimately associated with the present catarrhal troubles so universally prevailing.

"I saw no cases and the physicians said there were none at the time."

*Philip H. Simons, alias Charles Rohning:*

On April 21, 1888, a certificate was issued to Charles Rohning, of Brussels, Calhoun county, Ill., he having made an affidavit and presented as his a diploma of the Missouri Medical College dated March 4, 1875. In January, 1891, a letter was received stating that the original Rohning was dead, the man who personated him being Philip H. Simons.

After further correspondence with the parties, I called the attention of the State's Attorney, T. J. Selby, of Calhoun county, to the facts as represented, at the same time sending him all the papers in connection with the case, and, on March 3, requested him to have Simons arrested if he had corroborative evidence of the correctness of the statements made. This he did and the preliminary examination was set for March 18. Meanwhile I had received a dispatch from St. Louis that the man under arrest was the identical Dr. Rohning to whom a diploma had been issued by the Missouri Medical College. I telegraphed to the officers of the college to know who were the identifying parties and where they lived. I reached Hardin, for the preliminary trial, on the evening of March 18, and found in the hands of the State's Attorney the diploma that I had verified when the certificate was granted. This diploma was obtained from the widow of Charles Rohning, who lives at Lincoln, Mo. Soon after the death of Dr. Rohning, who also kept a drug store at Lincoln, Simons made his appearance there and took charge of the drug store, the daughter of Rohning being the assistant in the store. Simons seduced this daughter under promise of marriage. At this time he obtained possession of Dr. Rohning's diploma, and when asked for it said he had sent it to Sedalia to be framed. In the meantime, inquiry was made in regard to his character, and it was found that he had a wife and three children at Covington, Ky., and another wife at Lynnville, Warwick county, Ind.—the place he had left because his Kentucky wife had found where he was and threatened to prosecute him. He offered to marry Miss Rohning, but she would not consent, and fearing arrest he left Lincoln and went to Brussels, Calhoun county. By some means Mrs. Rohning learned where he was and wrote to him, insisting that he return the diploma.

At the trial he was taken suddenly ill and could not appear for the preliminary hearing. He had heard that there were men in Brussels from Lynnville, Ind., to identify him as Philip H. Simons. They saw his Indiana wife, however, and recognized her. They also brought a photograph from

Lynnville of Philip H. Simons, which is like one in a book recently published—"History of Calhoun and Pope Counties"—in which he claims to have been born at Goettingen, and that he graduated at the university there and also at Berlin. He says also that the Rohnings were a family of doctors, and that he served with his father in the Franco-Prussian war as an assistant surgeon when he was 15 years old. I fail to find such a name as Rohning in three different lists of physicians of the German Empire.

An examination of the Indiana Register of Physicians for 1888 shows that there was one P. Simons living at Lynnville, Warwick County, and through the County Clerk of that county I learned that he made an affidavit that he had a diploma, but he did not record it.

On April 14, I appeared before the Grand Jury of Calhoun County, and upon the evidence I gave, in connection with that of two parties from Lincoln, Mo., who gave important evidence bearing on his character, the grand jury indicted Rohning-Simons for perjury and forgery.

#### *Office Work:*

There were issued during the quarter 93 certificates authorizing the practice of medicine in the State: 83, to graduates of medical colleges that conform to our standard of minimum requirements, and 10, to graduates who were required to supplement their diplomas by evidence of proficiency in the subjects or branches omitted by their respective colleges. Four duplicates were issued upon proof of loss or destruction of the originals. Twelve applicants were rejected on account of inability to comply with the law and the requirements of the BOARD.

Certificates were also issued to 13 midwives: 9, upon diplomas or licenses, and 4, upon examination and three applicants were refused licenses.

During the quarter 1567 written communications were received and 1522 sent out. Of printed matter there were distributed 471 Tenth Annual Reports, 1864 copies of the Seventh Report on Medical Education, 2200 copies of the Preventable Disease circulars of the BOARD, besides a number of the BOARD's earlier reports and publications.

Respectfully submitted,

JOHN H. RAUCH, M. D.,

*Secretary.*

This being the annual meeting for examination, the following candidates presented themselves: Joseph De Trana, W. B. Foster, Emma Hellwig, M. Jasilkowski, A. E. Kroening, M. Lepere, Florence E. Manion, J. E. McIntyre, H. G. Merz, Josephine F. Prentice, S. W. Slaughter, B. F. Strzyzowski and Ingeberg Taustrom.

The accounts and vouchers for the quarter, amounting to \$3383.02, were referred to the Auditing Committee, who re-

ported that they had examined the same, found them correct and recommended that they be paid.

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At the afternoon session, Drs. Knox and Dodson appeared before the BOARD and stated that they had been appointed by the Rush Medical College to present the following petition and to consult with the BOARD concerning the same:

CHICAGO, ILL., April 23, 1891.

*To the STATE BOARD OF HEALTH OF ILLINOIS:*

GENTLEMEN:—The undersigned committee was recently appointed by the faculty of Rush Medical College of Chicago to consult with you as to what attitude the faculty should assume under the present ruling of the BOARD in regard to the courses of study preliminary to the study of medicine now offered by the following institutions: University of Wisconsin, University of Pennsylvania, The Johns Hopkins, Lake Forest, Northwestern University, Yale, Cornell and Princeton Colleges.

The course provided by the University of Wisconsin is fairly representative of them all. It is styled at that institution a "Special Science Course Antecedent to the Study of Medicine." That course is outlined, briefly, on pages 163 and 164 of the Report of your BOARD for 1891, and more fully detailed in the pages of the catalogue of the University of Wisconsin for 1889-90, hereto attached. You will observe, on looking over the course, that it comprises, in addition to the distinctive literary branches, a large amount of work in those sciences which are immediately related to the science of medicine and to the studies the student's time is wholly devoted to during the first two years of the four years' course.

The course includes: 1. Chemistry, extending over the three full years, and embracing toxicology and urinalysis. 2. Botany, nearly four years' work and including vegetable histology and embryology and pharmaceutical botany. 3. Zoology, four years' work, including two terms of vertebrate anatomy, two terms of embryology, two of human physiology, from two to four terms of histology and from one to three terms of bacteriology. 4. Physics with laboratory work, four terms. 5. Materia medica, three terms.

In short the course comprises all of the studies generally required in the first year of the three courses of lectures now required at our medical schools—to-wit: anatomy, physiology, chemistry and materia medica (with the exception of practical human anatomy) and in addition to this it provides several studies of great value to the medical student, viz: physics, pharmaceutical botany and chemistry, embryology, histology, vertebrate anatomy and bacteriology.

The courses provided in the other institutions above mentioned differ only in detail and arrangement from the one here outlined.



The requirements for graduation at Rush Medical College now demand that the student shall have studied medicine four years and shall have attended three courses of lectures of six months each. The faculty, however, has considered the special science course antecedent to the study of medicine provided at the University of Wisconsin and outlined above, to be more than equivalent to two of the four years of study required and to one course of medical lectures. The faculty has permitted students, graduates of this course, to come up for graduation after attending two courses of lectures, believing that such a student will accomplish more in two years than will the average untrained student in four years.

We would respectfully inquire of the BOARD whether the BOARD will recognize diplomas issued to such students after attendance upon two full courses of lectures at Rush?

Very respectfully yours,

WALTER S. HAINES, }  
J. SUYDAM KNOX, } of the Committee.  
JOHN M. DODSON, }

After the reading and consideration of the above, the matter was referred to Drs. Griffith and Rauch as a committee with power to act.

Upon motion of Dr. Ludlam, duly seconded, the officers of last year were re-elected for the ensuing twelve months.

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At the sessions of Friday, the examination of candidates for license to practice medicine was continued throughout the day. The following candidates were successful: M. Lepere. Florence E. Manion, J. E. McIntyre and Josephine F. Prentice.



## QUARTERLY MEETING, CHICAGO, JUNE 30, 1891.

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The regular quarterly meeting of the ILLINOIS STATE BOARD OF HEALTH was held at the Grand Pacific hotel, Chicago, Tuesday, June 30, 1891. Present: Drs. W. A. Haskell, A. L. Clark, B. M. Griffith, W. R. Mackenzie and D. H. Williams and the Secretary, Dr. John H. Rauch—the President, Dr. Haskell, in the chair.

The BOARD was called to order at 10 o'clock A. M., and the minutes of the last meeting were read and approved.

Upon call for reports of officers, the Secretary presented his report for the quarter ended June 30, 1891, which was received, read and ordered to be recorded.

### REPORT OF THE SECRETARY, QUARTER ENDED JUNE 30, 1891.

The public health of the State has been unusually good during the past quarter. There has been scarlet fever at East Plato, Englewood, La Moille and Keithsburg: diphtheria in Barnett township, near Callsville, DeWitt county, also in Princeton—case imported from Dixon: at Fisher and at Spring Lake, Tazewell county.

Small-pox was reported at the Cook county poor house. Dr. H. R. Guthrie sent the history of the three cases at Sparta mentioned in the quarterly report for April; the disease was brought from St. Louis. A case of varioloid was reported in Bloomington in April.

Cholera broke out among 280 Bengalis pilgrims at Camaran on May 15. In consequence of this an appeal has been made in Italy to the Government to revive Signor Crispi's proposal for collective action on the part of the European powers to institute a sanitary surveillance of the Red Sea waters and ports. Cholera was prevailing to an alarming extent in Bangkok, Siam, during the last week in April. Under date of May 26, Dr. S. C. Zavitziano writes from Constantinople that the total number of cases of cholera registered at Camaran from May 15 to 19 was 15, 14 being pilgrims and one sanitary guardian. There were four deaths. The pilgrims among whom the cholera broke out were sent home in accordance

with their wishes, in order to get rid of the epidemic. No new case occurred after the pilgrims were sent away.

*Conference of State Licensing and Examining Boards:*

On May 6, the Secretary attended the meeting of representatives of State Licensing and Examining Boards held in Washington, the object of the meeting being to exchange views as to methods of examining candidates for license, and also to forward a national organization of these bodies, so as to agree upon a uniform plan of action and in order to co-operate in the work in which these bodies are engaged.

At this meeting there were representatives from Alabama, Illinois, Iowa, Minnesota, Missouri, Montana, New Jersey, New York, North Carolina, North Dakota and Virginia.

A temporary organization was effected by the election of Dr. John H. Rauch, of Illinois, President, and of Dr. L. J. Picot, of North Carolina, Secretary.

The representatives of the different boards explained the methods followed in the different states. This is given in the "Report on Medical Education" for 1891.

It was the uniform testimony of the representatives of mixed boards that entire harmony exists in such boards.

A permanent organization was effected by the election of the temporary officers, and the meeting adjourned to convene in Detroit, in June, 1892, at the time of the meeting of the American Medical Association.

*National Conference of State Boards of Health:*

The Secretary attended the Seventh Annual Conference of State Boards of Health, which met in Washington on May 2. The attendance was larger than at any former meeting, there being representatives from Alabama, Connecticut, Illinois, Indiana, Iowa, Kentucky, Louisiana, Maryland, Michigan, Missouri, New Hampshire, New York, North Carolina, Ohio, Pennsylvania, Rhode Island, South Carolina, Tennessee, Vermont, West Virginia, Wisconsin, District of Columbia and the Province of Ontario.

Dr. Jerome Cochran, State Health Officer of Alabama, opened the session by discussing the following question propounded by the Pennsylvania State Board of Health:

"What are the requisites for a thorough system of quarantine and maritime sanitation in the light of present scientific attainments?"

Dr. Oliphant, President of the Louisiana Board, discussed the following question proposed by Alabama:

"Given a vessel with cargo from Central or South America or the West India Islands, can such a vessel and cargo be disinfected without discharging the cargo? Can such cargo be disinfected thoroughly without damage, after it has been discharged?"

Dr. Saloman, Secretary of the Louisiana State Board, then discussed the question:

"What are the best methods for self protection of individual states from the introduction of pestilence through states which have no adequate quarantine?"

The State Board of Health of Ohio submitted the following questions:  
 "Should State Boards of Health have control of the sanitary arrangement of all school buildings to be erected within their boundary? What is the best plan to secure such control?"

On the second day, June 4, Dr. Bryce, Secretary of the Ontario Board, read a paper on the following question, proposed by the Kentucky Board:

"What should State and local boards teach, and what should they do to prevent consumption?"

Dr. Lindsley, Secretary of the Connecticut Board, discussed the question proposed by the Ontario Board:

"Would the appointment of medical health officers for counties, in place of township officers, and paid for devoting their time exclusively to public health, be advantageous and practicable?"

Another proposition from the Ontario Board was the question:

"What would be the advantages of the organization of a Rivers Conservancy Commission composed of State and municipal health boards for the protection of streams against deforesting and pollution at their sources and along their courses?"

After some discussion the following resolutions were adopted:

*Resolved*, That it is the sense of the Conference that the pollution of streams is attaining such magnitude that early action should be taken by State and local boards of health looking to its prevention.

*Resolved*, That a committee be appointed to consider the best means of securing the formation of a Rivers Conservancy Commission, composed of State and local boards of health, and to recommend such legislation as may be necessary to secure the desired result.

*Resolved*, That this committee be requested to consider and report upon the sanitary value—especially to municipalities—of the purification of water in polluted streams, either by the distance which such polluted water has traveled, or by means of filter or storage beds, or by any other artificial means.

The following gentlemen were appointed on the committee:

Dr. L. F. Saloman, of Louisiana, Dr. C. A. Lindsley, of Tennessee, Dr. C. N. Metcalf, of Indiana, Dr. John H. Rauch, of Illinois and Dr. H. P. Walcott, of Massachusetts.

The Conference then adjourned to meet next year in New Orleans.

#### *Medical Education:*

The medical college announcements are now coming in, and it is gratifying to note that almost all the colleges are now requiring four years of study and three courses of lectures.

The following resolution was unanimously adopted by the Indiana State Medical Society on June 11, 1891:

WHEREAS, Responding to the demand for advanced and thorough medical education, a number of colleges in Indiana have made compulsory, as a prerequisite to graduation, four years of study and three courses of lectures of six months each; Therefore

*Resolved*, That this Society heartily endorses such action and, as a matter of simple justice to those schools, we respectfully request the authorities of the state to consider and class medical colleges who demand less than the above requirements as institutions not reputable and their diplomas as unworthy of recognition.

At the meeting of the Illinois State Medical Society, held in Springfield on May 19-21, the requirements of four years' study and three courses of lectures were unanimously endorsed.

On June 6, the Secretary sent the following circular to about 250 medical and literary institutions:

SPRINGFIELD, June 6, 1891.

DEAR SIR:—There is a demand from medical teachers and from young men who intend to study medicine for a literary course preparatory to the study of medicine. This demand has been met by a few of the literary institutions in the United States, and it is hoped and believed that it will be much more generally met during the next two years. The following institutions now offer science courses for students who intend to study medicine, or who intend to teach or otherwise engage in biological work:

- |                                |  |
|--------------------------------|--|
| 1. University of Wisconsin.    | 10. West Virginia University.          |
| 2. University of Pennsylvania. | 11. University of Kansas.              |
| 3. Johns Hopkins University.   | 12. University of Illinois.            |
| 4. University of Notre Dame.   | 13. University of Indiana.             |
| 5. Yale University.            | 14. Swarthmore College.                |
| 6. Cornell University.         | 15. Haverford College.                 |
| 7. Princeton University.       | 16. Tulane University.                 |
| 8. Lake Forest University.     | 17. Massachusetts Inst. of Technology. |
| 9. Northwestern University.    | 18. Leland Stanford University.        |

As must be obvious, such a course should be based on biology, and should include thorough work in this science, as well as in osteology, comparative anatomy, physics and chemistry, with English, French, German, some Latin, clay modeling, free-hand drawing, mineralogy, mathematics through trigonometry, mechanics, logic, general and pharmaceutical botany and (in the last year) psychology.

It is of course understood that botany, being a branch of biology, should have a prominent place in the course.

The catalogues of the universities mentioned contain the list of studies offered in their science courses.

Such a course should extend over four years. This will involve no loss nor waste of time to the student. The ILLINOIS STATE BOARD OF HEALTH now requires that students of medicine matriculating in the autumn of 1891, or thereafter, must study medicine four years and must attend three courses of lectures, no two in the same twelve months, in order to obtain a license to practice in Illinois. This rule will apply also in some other states. The ILLINOIS STATE BOARD will, however, recognize a thorough course in science, such as indicated above, as equivalent to two years' study and one course of lectures, thus enabling the student to enter the second class in the medical college. This makes the full time of study six years in the literary schools, or two years less than is required of the student pursuing a strictly classical course. Not only will time be thus saved, but the science student will be much better prepared to enter the second course of the medical school than will the classical student to enter the first year.

The ILLINOIS STATE BOARD wishes to make up a science course that can be recommended to any college wishing to adopt such a course and, having but little time to study the subject, I desire to enlist your aid and have your advice in the matter, so as to make the course as practical and as beneficial as possible. Will your faculty, therefore, make out such a course as it thinks best for the purpose and send it to the Secretary of the BOARD?

The demand from medical teachers and from students of medicine having been met by some universities, must be met by all that would continue to hold a high rank as educators of young men for the work of life.

Respectfully,

JOHN H. RAUCH, M. D., *Secretary.*

Encouraging reports have been received from a few institutions, and it is expected that at the beginning of the session of 1891-92 about twenty or twenty-five literary institutions will offer a course preparatory to the study of medicine.

### *The Rohning Case:*

The case of Charles Rohning was set forth at length in the quarterly report for April. Since then, the Secretary has been to Hardin and appeared before the Grand Jury, which indicted Rohning on two counts. The case comes up for trial in October.

### *Case of S. E. McCreary:*

Dr. S. E. McCreary, of Peoria, has been notified to appear at this meeting of the BOARD and show cause why his certificate should not be revoked for unprofessional and dishonorable conduct.

### *A Bogus Illinois Diploma:*

In May, the Secretary received from Dr. Thomas D. Ross, of Shoshone, Idaho, a letter saying that one Thomas J. Redmond, a non-graduate, had come from Shoshone to Chicago, in the Spring, spent a few weeks, and returned with a diploma from the "National University of Chicago."

The following is a copy of the diploma as recorded in the office of the Clerk of Logan County, Idaho:

## SENATUS UNIVERSITATIS NATIONALIS.

In Republica Illinoiensi.

Omnibus et Singulis has Tabulas Lecturis:

His Literis vos ceritoris facimus Thomam J. Redmond moribus egregium, probatioine habita Medicinæ et Artium Liberalium scientiæ siæ testimonia dedisse Quamobrem nobis placuit eundum Titulo Graduque Doctoris in Medicina decorare et ei fruenda dare omnia Iura Privilegia et Honores quæ hic auf alibi ad hunc Gradum pertinent.

Cujus rei in testimonium, pro auctoritate nobis commissa, nomen Præsidis subscribi et sigillum Universitatis publicum apponi curavimus.

Datum Pridie Januarias Anno Domini MDCCCLXXXIV.

F. W. Harkins, Præses.

Testor:

A. B. Gorman, Giratorum Scriba.

L. T. Mix, M. D., Prof. of Ophthalmology.

M. C. Coleman, A. M., M. D., Prof. Prin. & Prac. Med.

E. Vincent Paula, Prof. of Anatomy.

Ernest C. Spauling, M. D., Prof. Surgery.

L. A. Whiting, M. D., Prof. Chemistry.

H. W. Laing, M. D., Prof. Obstetrics.

Fredk. J. Wehrmayer, M. D., Prof. Physiology and Hygiene.

Geo. M. Shaw, A. M., M. D., Prof. Materia Medica and Therapeutics.

Recorded at request of T. J. Redmond, May 14, 1891, 2 p. m., in book 34 page 53.

W. B. George, County Recorder

County of Logan, }  
State of Idaho. } ss.

I hereby certify that the above and foregoing is a full, true and correct copy of the same as shown by the records of Logan county, on Page 53 of Book 34.

Witness my hand and official seal this 19th day of May, 1891.

W. B. GEORGE,  
County Recorder.

None of the names attached to this diploma are in the Physicians' Register, nor have any of the men certificates to practice in Illinois.

The president of the concern that issued this document, F. W. Harkins, was the "founder" of the "Chicago Correspondence University," incorporated in 1885, re-incorporated in 1887, extinct in 1889.

He was connected also with the "Chicago College of Science" in 1888. It became extinct in 1889. The following letter was received from him on June 2:

CHICAGO, ILL., June 1, 1891.

HON. JOHN H. RAUCH, *Secretary of the Illinois State Board of Health, Springfield, Ill.*

DEAR SIR:—In a letter written by you some time ago to a gentleman of Nashville you say that I "started the Chicago Polyclinic School" and that this has proved a "failure."

I write to correct such an impression and also to assure you that this University is simply awaiting the finishing of its new building before carrying out its local work, now already partly begun, and that until it has a local medical department it has decided to grant no medical degrees, not because of any doubt of legal authority to do so, but in deference to a deep-seated prejudice against correspondence medical work, that we do not care to antagonize at present or do pioneer work in removing. Our correspondence work under a large faculty of eminent gentlemen is not surpassed, I believe, by that of any institution in the land.

Very respectfully yours,

F. W. HARKINS, *Chancellor.*

P. S.—No medical degree, de novo, has ever been granted by this University.

#### *Office Work:*

During the quarter ended June 30, 1891, there were received in the Secretary's office 1397 written communications, exclusive of diplomas submitted for verification, affidavits, letters of recommendation, etc., pertaining to 311 applications for certificates entitling to practice medicine, and to 35 applications from midwives. There were sent out during the same period 1518 communications of all kinds, including about 250 circular letters to medical and literary institutions concerning a course preparatory to medicine; 221 copies of the last Report on Medical Education; 137 Tenth Annual Reports; about 1000 copies of the Preventable-disease Circulars, besides the usual number of the other publications of the BOARD.

There were issued during this period 268 certificates on diplomas of colleges which conform to our Schedule of Minimum Requirements; 10, to graduates of other colleges who were required to supplement their diplomas by evidence of proficiency in the subjects or branches omitted by their respective schools; 5, upon examination and 5 duplicates, upon proof of the loss or destruction of original certificates; and 23 applicants were rejected because of inability to comply with the law and the regulations of the BOARD based thereon.

Certificates were also issued to 22 midwives, licentiates, and to 7 upon examination, 6 being rejected.

Miss Augusta Johnson appeared and requested that a certificate to practice midwifery be issued her upon her diploma from the Chicago Deaconess,



Nurse and Midwife School, which she presented. She was informed that the question of the recognition of the diplomas of said school had not yet been determined.

Respectfully submitted,

JOHN H. RAUCH, M. D.,

*Secretary.*

In response to a notice from the Secretary, Dr. Johan Malok, one of the faculty of the "German College of Medicine and Obstetrics of Chicago," came before the BOARD. He stated that the school was not yet prepared to submit its course to the BOARD.

In the absence of Dr. Ludlam, the president appointed Dr. B. M. Griffith to serve as a member of the Auditing Committee, and the accounts, vouchers and financial statements for the quarter ended June 30, 1891, were referred to the said Committee.

Drs. Rauch and Griffith, who were, at the last meeting of the BOARD, appointed a committee with power to act upon the inquiry of Rush Medical College as to whether the BOARD would recognize certain Special Science Courses Antecedent to the Study of Medicine, as equivalent to two of the four years of study and one of the three courses of lectures required of medical colleges in good standing, reported that they had answered in the affirmative and had indicated the curriculum of the University of Wisconsin as a course of study such as would, for the present, be so accepted.

Upon motion, the report of the committee was approved.

Communications were read by the Secretary stating that certain physicians had been convicted of abortion. Upon motion, it was resolved that the BOARD will revoke the licenses of any physician who has been convicted of abortion.

Upon motion of Dr. Williams, Dr. Clark was appointed to represent the BOARD at the International Conference of Hygiene and Demography to be held in London, England, August 10, 1891.

A petition from the Indiana Eclectic Medical Association, asking that this BOARD "recognize the diplomas of the Indiana Eclectic Medical College granted prior to May 15, 1890," was read, and upon motion the prayer of the petition was granted.

The BOARD sustained the action of the Secretary in declining to issue an itinerant license to the Hamlin Wizard Oil Co.

In accordance with a previous resolution of the BOARD, the President directed the Secretary to take steps for the revocation of the licenses of physicians convicted of producing criminal abortion and malpractice.

A communication was read from U. L. Blu, of Indianapolis, Ind., requesting a personal investigation of the Eclectic Medical Colleges of Indianapolis, whereupon it was ordered, upon motion of Dr. Clark, that Dr. Rauch be authorized to go to Indianapolis for the purpose of making such an investigation.

Dr. Griffith moved that the action of the BOARD at its meeting April 23, 1891, with regard to the election of officers, as stated by the minutes, be ratified.

The motion was seconded by Dr. Williams. Motion carried.

In the case of Samuel E. McCreary, who had been notified to appear and show cause why his certificate should not be revoked for unprofessional and dishonorable conduct, Judge S. S. Page appeared for McCreary and asked for further time in which to prepare the defense.

Upon motion of Dr. Williams, consideration of the case was postponed to next meeting.

Dr. Rauch was authorized and directed to re-examine one Emma Hellwig, who failed to pass at the April examination.

At the afternoon session, the President read the following letter of resignation from the Secretary:

CHICAGO, June 30, 1891.

TO W. A. HASKELL, M. D.:

*President Illinois State Board of Health.*

DOCTOR:—I beg to tender my resignation of the office of Secretary of the STATE BOARD OF HEALTH, to which I was re-elected at the last meeting.

Whilst I must stipulate that this resignation shall take effect as of this date, I do not wish to embarrass the BOARD in any manner and shall be happy to furnish the fullest information concerning the complicated details of the Secretary's office and to discharge any of its duties that the BOARD may indicate, without compensation for a reasonable period.

Accept for yourself individually and convey to the other members of the BOARD my thanks for the uniform courtesy and generous support which has been accorded me in the offices of President and Secretary since the first organization of the BOARD in 1877.

Very truly yours,

JOHN H. RAUCH.

After reading the letter, the President added that he presumed the members were sufficiently aware of the circumstances which had led Dr. Rauch to take this action.

He would refrain at this time from any expression of opinion upon, or characterization of those circumstances, but he could not withhold his tribute to the services which Dr. Rauch had rendered to the medical profession and to the cause of sanitary science—the protection of the health and lives of the citizens not alone of Illinois but of the country at large, for nearly half a century.

Continuing, the President said that Dr. Rauch's name is known and honored on both sides of the Atlantic. Through his untiring energy, sagacity, devotion to lofty ideals and unhesitating self-sacrifices, the ILLINOIS STATE BOARD OF HEALTH has come to be recognized as the most important factor in all questions of medical education, in matters affecting public sanitation, the suppression and seclusion of epidemic diseases and the health interests of a nation of 65,000,000 people.

The President would not, at this time, attempt to put in words what he felt assured were the sentiments of his colleagues, but hoped, in accepting the resignation, that a committee would be appointed to prepare an adequate expression of the high appreciation and esteem in which Dr. Rauch is held by the members and their unfeigned regret at his resignation.

On motion of Dr. Griffith, the President was authorized to appoint the committee suggested, and Drs. Newton Bateman, A. L. Clark and R. Ludlam were named by the chair.

On motion of Dr. Griffith, the President was added to this committee, which was further instructed to secure the publication of its report without waiting for the next meeting.

Upon motion of Dr. Mackenzie, it was ordered that the present office force continue in the discharge of their duties until further orders from the BOARD have been received.

The Auditing Committee reported that it had examined the financial statements, accounts and the vouchers therewith submitted, amounting to \$3,076.93, had found the same correct and recommended that they be paid.

The BOARD adjourned to meet in Springfield upon call of the President.



## CALLED MEETING, SPRINGFIELD, AUGUST 4, 1891.

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Pursuant to the adjournment of the June (1891) meeting, the ILLINOIS STATE BOARD OF HEALTH, upon call of its President, met at its rooms in the Capitol building, Tuesday, August 4, 1891, at 2 o'clock P. M.

There were present: Dr. W. A. Haskell, President; Drs. B. M. Griffith, Daniel H. Williams and W. R. Mackenzie.

Dr. Haskell, a member of the committee appointed at the last meeting to formulate resolutions concerning the resignation of Dr. Rauch as Secretary of the BOARD, stated that the committee was not prepared to make a report.

Dr. Williams moved that the resignation of Dr. Rauch as Secretary of the BOARD, tendered at the last meeting, be accepted. The motion was seconded by Dr. Mackenzie, and a vote having been taken, the President announced that the motion had carried.

Dr. Williams made a motion that the BOARD now proceed to elect a Secretary to serve until the next meeting of the BOARD, to be held in Chicago on September 24, 1891. As a result of the motion and of the ballot which followed, the President declared Dr. W. R. Mackenzie, who received a majority of all the votes cast, duly elected Secretary of the ILLINOIS STATE BOARD OF HEALTH, to serve until September 24, 1891.

The BOARD approved the action of the former Secretary in refusing a license to James E. McGrew, M. D., of Omaha, Nebraska, upon the ground of false and fraudulent advertising.

In the absence of Dr. Ludlam, the President appointed Dr. Griffith on the Auditing Committee, to which was referred accounts amounting to \$102.75; and the committee, having examined and found them correct, recommended that they be paid.

The BOARD adjourned to meet at the Grand Pacific Hotel, Chicago, Thursday, September 24, 1891, at 10 o'clock a. m.



## QUARTERLY MEETING, CHICAGO, SEPTEMBER, 24-25, 1891.

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The regular quarterly meeting of the ILLINOIS STATE BOARD OF HEALTH was held at the Grand Pacific Hotel, Chicago, September 24-25, 1891.

Present: Drs. Bateman, Clark, Ludlam, Griffith, Williams, Haskell and Mackenzie.

The minutes of the June 30, 1891, meeting, and of the meeting of August 4th, 1891, were read and approved.

The quarterly report of the Secretary, Dr. Mackenzie, was received, read and accepted.

Upon motion, the Secretary's action in connection with the investigation of diphtheria at Howard, Farmington and Worden, was approved.

Upon the call for committee reports, Dr. Ludlam, from the special committee appointed to draft resolutions concerning the resignation of Dr. Rauch, reported that the committee would be ready to report at the afternoon session.

The Auditing Committee reported that they had examined accounts to the amount of \$2,406.06 and the vouchers therewith submitted; had found them correct and recommended that they be paid.

Dr. Griffith moved that the decision of Dr. Rauch in declining to issue a certificate to S. Landauer while in the employ of Dr. Janss be sustained. The motion, being seconded by Dr. Mackenzie, was adopted.

Dr. Ludlam moved that the Board decline to issue a certificate to Maurice A. Otterbourg, a graduate of the Iowa Eclectic Medical College (Medical Department of Drake University) Des Moines, Iowa, on the ground that said college is not in good standing. This motion was seconded by Dr. Griffith and it was so ordered.

The Secretary was directed to notify Dr. A. B. Knott that, under the existing circumstances, nothing could be done in his case.

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At the afternoon session, Dr. Bateman, the chairman of the committee appointed to draft resolutions concerning the resignation of Dr. John H. Rauch, after expressing his interest in the BOARD, of which he had been a member from its beginning, his gratification that it had always been in the strictest sense a State Board, free from all professional and political or other irrelevant bias, and that there had been unbroken harmony and good feeling in its deliberations, and after further expressing his earnest hope that these excellent features might continue to characterize the BOARD, submitted the following preamble and resolutions:

WHEREAS, Dr. John H. Rauch, after fourteen years continuous service, has severed his connection with the ILLINOIS STATE BOARD OF HEALTH, having on the 30th day of June last, tendered his resignation as its Secretary, the following resolutions are hereby adopted, as in some degree expressing the sentiment of the individual members of the BOARD toward their friend and colleague;

*Resolved*, That Dr. Rauch's services in the cause of sanitary science and of the best interests of the medical profession have given the State of Illinois a gratifying pre-eminence not only in this country, but wherever the sanitarian and the physician are known and recognized as useful members of society.

*Resolved*, That Dr. Rauch's eminent attainments as a practical sanitarian, illustrated in his management and control of epidemics, his reformation of the theory and practice of quarantine, his establishment of a system of immigrant inspection on sea and land, his conservation of the purity of food supplies and products and his work in the domain of preventive medicine, place him in the front rank of those who devote their lives to the material welfare of their fellow men.

*Resolved*, That to Dr. Rauch's untiring energy, to his vigilance and to his intimate personal knowledge of the profession, both in his own State and in the country at large, are chiefly due the establishment of a body of efficient legislation, regulating the practice of medicine—legislation whose precepts and adjudicated cases have been copied, adopted and endorsed by older commonwealths.

*Resolved*, That his wise aggressiveness, his forethought, sagacity and persistence, in the face of manifold obstacles, have nowhere been more strikingly displayed nor more usefully employed than in his successful efforts to elevate the standard of medical education.



*Resolved*, That Dr. Rauch's personal sacrifices in the discharge of his duties as member, Secretary and President of the ILLINOIS STATE BOARD OF HEALTH—sacrifices known to every member of the BOARD—are deserving of grateful recognition and substantial reward by the people of the State for whom he has so long and so faithfully labored.

*Resolved*, That the individual members of the BOARD, whose names are hereto appended, are unable adequately to express the regret caused by Dr. Rauch's resignation and the esteem in which he is held by them. They earnestly entertain the hope that he may long be spared to counsel and advise with them and their successors in matters touching the lives and health of the people of the state.

W. A. HASKELL, A. M., M. D., Harv.

NEWTON BATEMAN, LL. D.

ANSON L. CLARK, M. D.

R. LUDLAM, M. D.

WILLIAM R. MACKENZIE, M. D.

DANIEL H. WILLIAMS, M. D.

B. M. GRIFFITH, M. D.

The report of the committee was accepted as read and the preamble and resolutions therein were adopted.

Dr. Bateman, speaking of the contingency that makes it necessary to elect a new Secretary who is a member of the BOARD, announced his purpose to resign from the BOARD in favor of Dr. F. W. Reilly of Chicago, who was for a number of years associated with Dr. Rauch as his assistant and who is thoroughly familiar with the work and policy of the BOARD.

Dr. Bateman said that he offered his resignation in this way because he believed it to be for the best interests that such action be taken and he suggested that a resolution be adopted asking the concurrence of the Governor therein.

The conditional resignation of Dr. Bateman was accepted, and in compliance with his suggestion, the following resolution, offered by Dr. Ludlam and seconded by Dr Williams, was unanimously adopted:

*Resolved*, That the President be instructed to communicate by wire with his Excellency, Governor Joseph W. Fifer, asking him to appoint Dr. F. W. Reilly, of Chicago, as early as possible, to succeed Dr. Newton Bateman, resigned conditionally, in order that the BOARD may elect Dr. Reilly Secretary at this meeting.

In the matter of the complaint made by the citizens of Winchester with regard to the nuisance claimed to be caused by the Stock Yards of the C. B. & Q. R. R., Mr. LaTourette appeared

in behalf of the petitioners and W. D. Thorp, the Division Superintendent, in behalf of the Railroad. The BOARD heard the statements of both parties and promised to take the matter under advisement and to notify them of its decision.

Dr. McCreary of Peoria appeared by his attorney, Mr. Foster, and asked that more time be given him in which to prepare his defense. Upon motion of Dr. Griffith, he was given until the next meeting of the BOARD.

The action taken at the morning session on the application of A. B. Knott for a certificate was reconsidered and the Secretary was directed upon receipt of two more letters of recommendation to issue him a certificate.

In the case of Dr. McAlpine he was informed that his application was not in condition to be considered by the BOARD as he had not on file the required letters of recommendation.

After the transaction of other routine business, the BOARD adjourned to 8 o'clock p. m.

At the evening session, the President, Dr. Haskell, requested the Secretary to read the following telegraphic correspondence:

CHICAGO, Sept. 24, 1891.—Gov. Joseph W. Fifer, Springfield, Ill.:—The BOARD OF HEALTH in session to-day, orders to telegraph you that Dr Bateman has tendered his resignation to take effect upon the appointment of Dr. F. W. Reilly, of Chicago. The BOARD unanimously asks you to wire Dr. Reilly's appointment in order that we may at once elect him Secretary.

W. A. HASKELL,

*President of the Illinois State Board of Health.*

SPRINGFIELD, Sept. 24. 1891.—Dr. W. A. Haskell, care of Grand Pacific Hotel, Chicago:—I have this moment appointed Dr. Reilly a member of the STATE BOARD OF HEALTH, vice Dr. Bateman, resigned.

JOSEPH W. FIFER,

*Governor.*

Dr. Bateman moved and Dr. Griffith seconded, that the BOARD proceed to the election of Dr. Reilly as Secretary, the same to take effect as soon as the new member qualifies and announces his readiness to accept the office—the temporary Secretary, Dr. Mackenzie, continuing to act in the interim. In accordance with the foregoing, Dr. Reilly was then duly elected Secretary.

Dr. McGrew, of Omaha, appeared by his attorney, Silas Cobb, and asked that the BOARD reconsider its decision declining to

issue him a certificate. Upon a review of the case, the BOARD refused to reconsider its decision.

The Secretary was then directed to write to the city authorities of Winchester and refer the complaint of the C., B. and Q. Stock Yards nuisance to them for action, stating that the matter is entirely without the jurisdiction of the BOARD.

Upon motion, it was ordered that the report of the Secretary as read and approved be spread upon the records! It is as follows:

#### REPORT OF SECRETARY, QUARTER ENDING SEPTEMBER 30, 1891.

During the past quarter, scarlet fever and diphtheria have prevailed in a few localities of the State.

At the request of local authorities, the Assistant Secretary has visited Howard, Champaign Co., Farmington, Fulton Co., and Worden, Madison Co., on account of diphtheria in those places. At Farmington, seven deaths occurred in about 75 cases, five of the deaths being in the practice of one physician who denied the existence of diphtheria. Of the five deaths in his practice, four were due to diphtheritic paralysis and one to diphtheritic nephritis. There is reason to suspect that the first case of diphtheria at Farmington last May was contracted from some cows that had sore throat. The mayor promised to appoint a health officer who would take all necessary precautions and measures to suppress the disease.

At Worden, the disease appears to have originated with cats. In fact, there is scarcely any doubt that the disease was conveyed from house to house by sick cats. In addition it must be said that the town of Worden is in an extremely filthy condition. Filthy pig pens are to be found in almost every yard and in close proximity to the wells, while overflowing privy vaults add to the odors that assail the nostrils at every corner and in every street and alley. Notwithstanding the presence of diphtheria and the filthy condition of the village, the village board has refused to do anything, although repeatedly warned by the local physicians.

Diphtheria has been reported also from Apple River, JoDaviness county, and Sandwich, DeKalb county.

Scarlatina has been reported from Keithsburg—ten cases, one death—and at Monica, Peoria county, where there has been some trouble on account of the disregard of quarantine and the regulations of the local board.

#### *Medical Education:*

In August, circular letters were sent to the medical colleges in the United States and Canada requesting their announcements for the coming session, to be used in the preparation of the Eighth Report on Medical Education. Up to this date, 119 colleges have been heard from. In some cases it is evident from the announcements that there is no intention of complying with the regulation of four years' study and three courses of

medical lectures. However, the Secretary suggests that the BOARD should adhere strictly to its regulations which go in force with students matriculating this fall for the first time.

In regard to courses preliminary and preparatory to the study of medicine, it is gratifying to note that twenty-four literary institutions now offer such courses.

*Office Work:*

During the quarter, there were received in the Secretary's office 1,423 written communications, exclusive of diplomas submitted for verification, affidavits, letters of recommendation, etc., pertaining to 139 applications for certificates entitling to practice medicine and 27 applications from midwives. During the same period, there were sent out 725 communications, 47 copies of the Report on Medical Education, 15 Tenth Annual Reports, about 500 preventable disease circulars and a large number of pupils' certificates of vaccination—and a few of the older publications of the BOARD. During the quarter, there were issued 108 certificates on diplomas of schools that conform to the requirements of the BOARD; 11, to graduates of other colleges, who were required to supplement their diplomas by evidence of proficiency in the subjects or branches omitted by their respective colleges; two, upon examination and four duplicates, upon proof of loss or destruction of original certificates. Fourteen applicants were rejected because of inability to comply with the law and the regulations of the BOARD based thereon.

Certificates were issued to 17 midwives, licentiates, to four upon examination and to one a duplicate. Five were rejected.

Respectfully submitted,

W. R. MACKENZIE, M. D., *Secretary.*

Upon motion, the Board adjourned.



FINANCIAL STATEMENT  
OF THE  
ILLINOIS STATE BOARD OF HEALTH,  
FOR THE  
FISCAL YEAR ENDED SEPTEMBER 30, 1891.

*State Board of Health—Dr.*

<i>To State Treasurer:</i>		
Balance of Regular Appropriations, October 1, 1890.....	\$7,289 70	
Regular Appropriations, July 1, 1891, for ensuing fiscal year.....	9,000 00	
*Contingent fund appropriated July 1, 1891.....	10,000 00	
		\$26,289 70

*To Treasurer of Board:*

Balance on hand, October 1, 1890.....	\$723 06	
Office receipts for year ended September 30, 1891.....	3,468 00	
		4,191 06
		\$30,480 76

*State Board of Health—Cr.*

By payment on all accounts, as per itemized statement.....	\$11,415 49	
By unexpended balances of Regular Appropriations.....	7,157 31	
By Contingent Fund unexpended .....	10,000 00	
By unexpended balance in hands of Treasurer of BOARD .....	1,907 96	
		30,480 76

ITEMIZED STATEMENT OF EXPENDITURES

OF THE  
ILLINOIS STATE BOARD OF HEALTH,  
FOR THE  
FISCAL YEAR ENDED SEPTEMBER 30, 1891.

Salary of Secretary.....	\$2,722 80	
Services in connection with the Medical-Practice Act.....	606 80	
Services of Sanitary Engineer.....	350 00	
Clerical services.....	4,437 75	
Expenses of BOARD and Secretary, attending meetings and making sanitary investigations.....	744 71	
Services and expenses of sanitary experts making investigations.....	216 53	
Expenses of Clerk attending meetings in Chicago.....	55 90	
Postage.....	319 50	
Expressage.....	69 75	
Telegrams.....	90 68	
Telephone rent.....	36 00	
Stationery and printing.....	709 61	
Medical and sanitary journals, books and newspapers.....	184 44	
Legal services and costs in suits.....	55 30	
Dues—National Conference State Boards of Health.....	10 00	
Dues—American Statistical Association.....	2 00	
Janitor and messenger.....	720 00	
Laundry—office towels.....	9 00	
Ice.....	24 00	
Sundries.....	50 72	
		\$11,415 49
Total expenditures from Regular Appropriations .....	\$9,132 39	
Total expenditures from Office receipts.....	2,283 10	
		11,415 49

\*Contingent Fund, \$10,000 appropriated July 1, 1889, covered into the State Treasury, unexpended.

REPORT OF THE TREASURER  
OF THE  
ILLINOIS STATE BOARD OF HEALTH,  
FOR THE  
FISCAL YEAR ENDED SEPTEMBER 30, 1891.

*To the President and Members of the Illinois State Board of Health:*

GENTLEMEN:—Your Treasurer begs leave to present the following report of the receipts and disbursements of his office for the period commencing with the date of his last Annual Report, October 1, 1890, and ending September 30, 1891:

*General Account—Dr.*

Balance to credit of general account, October 1, 1890.....	\$723 06
Received from the Secretary, office receipts for the fiscal year ended September 30, 1891.....	3,468 00
Total accountability.....	\$4,191 06

*General Account—Cr.*

Moneys paid out by order of the BOARD on vouchers duly audited, approved and on file for indebtedness accrued during the fiscal year ended September 30, 1891:

Secretary's services in connection with the Medical-Practice Act.....	\$375 00
Secretary's traveling expenses re Medical-Practice Act.....	231 80
Expenses of BOARD and Secretary, attending meetings and making sanitary investigations.....	349 63
Printing Report on Medical Education.....	514 46
Miscellaneous printing and stationery.....	116 90
Making blue prints of sanitary maps.....	20 30
Sanitary Engineer.....	350 00
Medical and sanitary journals, books and newspapers.....	184 44
Legal services and expenses in connection with suits.....	55 30
Ice.....	24 00
Clerical services.....	10 00
Dues—National Conference State Boards of Health.....	10 00
Laundry—office towels.....	9 00
Dues—American Statistical Association.....	2 00
Telegrams.....	1 85
Sundry incidental office expenses.....	28 42
Total expenditures.....	\$2,283 10
Balance in his hands September 30, 1891.....	1,907 96
	\$4,191 06

All of which is respectfully submitted,

A. L. CLARK, *Treasurer.*

Audited and approved:

W. J. MACKENZIE, }  
D. H. WILLIAMS, } *Auditing Committee.*





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# APPENDIX.

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ZYMOTIC DISEASES IN CHICAGO--1890-92.

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SANITARY EXHIBIT.

OF THE

ILLINOIS STATE BOARD OF HEALTH

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WORLD'S COLUMBIAN EXPOSITION--1893.

# ILLINOIS STATE BOARD OF HEALTH.

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## *Members and Officers, 1892:*

W. A. HASKELL, M. D., Alton, *President*.

R. LUDLAM, M. D., Chicago.

A. L. CLARK, M. D., Elgin, *Treasurer*.

B. M. GRIFFITH, M. D., Springfield.

W. R. MACKENZIE, M. D., Chester.

D. H. WILLIAMS, M. D., Chicago.

F. W. REILLY, M. D., Chicago, *Secretary*.

## *Members and Officers, 1893:*

WILLIAM E. QUINE, M. D., Chicago, *President*.

JOHN A. VINCENT, M. D., Springfield.

GEORGE THILO, M. D., Chicago.

B. M. GRIFFITH, M. D., Springfield, *Treasurer*.

SARAH HACKETT STEVENSON, M. D., Chicago.

JAMES B. MCFATRICH, M. D., Chicago.

JULIUS KOHL, M. D., Belleville.

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J. W. SCOTT, M. D., Chicago, *Secretary*.

## ZYMOTIC DISEASES IN CHICAGO—1890-92.

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The maps, charts and diagrams which form the Sanitary Exhibit of the ILLINOIS STATE BOARD OF HEALTH at the World's Columbian Exposition are intended to illustrate the prevalence and some of the causes of zymotic or preventable diseases in Chicago during the years 1890, 1891, 1892. They are the results of an investigation begun by the Secretary\* during the winter of 1891-92, into the epidemic prevalence of typhoid or enteric fever. This epidemic prevalence had attracted the attention of sanitarians and health authorities elsewhere, and had finally formed the subject of a paper read before the American Statistical Association and entitled "Statistics of Typhoid Fever in Chicago," by Professors William T. Sedgwick and Allen Hazen, of the Massachusetts Institute of Technology. The substance of the paper had been widely published and commented on, not only in Chicago but throughout the United States and in Great Britain and Europe.

The opening sentences of Messrs. Sedgwick and Hazen are as follows:

"It does not appear to have been generally recognized that within the last two years, [1890-91] and especially within the last nine months, typhoid fever has been unusually prevalent in the city of Chicago. The fact, however, is that an epidemic of really alarming proportions has prevailed in Chicago within the last year, and the latest returns indicate that the city is still suffering very severely from this formidable disease. Inasmuch as a World's Fair is soon to be opened in Chicago, this unfortunate condition becomes of more than local consequence, and should excite grave apprehension. If any remedy exists it ought to be found and applied without delay. It is especially important that the sanitary condition of Chicago in 1893 should be above reproach, because that of Philadelphia in 1876

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\*DR. F. W. REILLY, of Chicago.

was not. At the time of the Centennial Exhibition there was much complaint of the sanitary condition of Philadelphia. Physicians can testify that numerous cases of typhoid fever which came under their observation in 1876 appeared to be plainly traceable to infection received in Philadelphia."

The gist of the paper consists of sundry tables and extracts from the official reports of the health departments of Chicago, Philadelphia, Boston, New York and London, between 1870 and 1891, showing the relative prevalence of typhoid fever in those cities as indicated by the official returns of deaths from that disease. Based upon these official data the following conclusion is arrived at by the writers:

"In the city of Chicago there has been for many years a large amount of typhoid fever. It was abundant, for example, in 1872, in 1881, in 1885 and in 1886. Between 1886 and 1890, however, it was less common; but in 1890, the death-rate from typhoid fever suddenly arose to a height almost exactly the same as that reached by Philadelphia in 1876, namely, to 9.16 deaths per 10,000 of inhabitants and 4.16 per cent. of all deaths which occurred in that year. In other words, typhoid fever prevailed as extensively in Chicago in 1890 as in Philadelphia in 1876. The actual number of deaths in Chicago in 1890 from typhoid fever was 1,008. Remarkable as these figures were they proved to be only the prelude to others still more remarkable in 1891. During the year just ended Chicago has reported 1,997 deaths from typhoid fever, giving the prodigious death-rate for this disease of 16.64 per 10,000 of population and a percentage of all deaths of 7.19. In the month of May alone there were in Chicago 408 deaths from typhoid fever, or very nearly one-half as many as in the whole state of Massachusetts during the entire twelve months of 1890, and very nearly two-thirds as many as in London, with more than 4,000,000 people, during the whole of the previous year. In the single month of May, 1891, there were more deaths from this disease in the city of Chicago than in the city of New York during the whole twelve months of 1888, or 1889, or 1890, or 1891. In 1891 there were 385 more deaths from typhoid fever in Chicago than are reported by the State Board of Health for the previous year in the whole State of New York, with five times the population; and nearly 1,400 more deaths than in London, with three and a half times the population of Chicago."

The writers add:

"It does not seem probable that these extraordinary figures can be surpassed or even maintained in 1892 or 1893, but as an indication of the sanitary condition of Chicago they must be a source of anxiety to its citizens, as they certainly are a menace to the sanitary success of the World's Fair."

At a conference\* called by the Secretary, February 10, 1892, the foregoing facts were presented, and in commenting upon Sedgwick and Hazen's diagram—which is here reproduced—Dr. Reilly briefly traced the connection between the variations of typhoid-fever incidence and the drainage of the Chicago river into the Illinois and Michigan canal.

The first marked ascent of the Chicago black line, as shown on the diagram, is in 1872, the year following the great fire, with its consequent overcrowding from the destruction of homes and the access of thousands engaged in rebuilding. Typhoid fever was brought into the city by these thousands and found favorable conditions for its spread. These conditions, however, were only temporary, and the effect of the deepening of the Illinois and Michigan canal—completed in 1871, and by which the sewage contents of the river for a time flowed by gravity down the Illinois valley—was manifested in a general reduction of the death-rate and markedly of that from typhoid fever, as shown by the descending line, which reached its lowest point in 1880. From this lowest point the line again abruptly rises in 1881, and this ascent is due to the character of the precipitation in the winter of 1880-81, when it was unusually light, and during the year 1881, when it was unusually heavy. In November and December, 1880, and in January, 1881, there was only about one-third the usual precipitation, but February, 1881, was very wet, there being more than double the average amount of snow and rain, and a sudden thaw flushed the sewage out into the lake. The flushings of the river into the lake were repeated in June, September, October and November of this year. Up to this time the flow from the Chicago river into the canal

\*At this conference, which was held on Tuesday, February 16th, 1892, in the Mayor's office, City Hall, Chicago, there were present—

Municipal Authorities: Hempstead Washburne, Mayor; Dr. John D. Ware, Commissioner of Health; J. Frank Aldrich, Commissioner of Public Works; H. N. May, City Comptroller; J. C. Clarke, City Engineer; Prof. Walter S. Haines, City Chemist.

Sanitary District Officials: J. J. Altpeter, L. E. Cooley, B. A. Eckhardt, A. P. Gilmore and Frank Wenter, Trustees, and A. A. Goodrich, Attorney of the District.

Illinois and Michigan Canal: John C. Ames, Louis Hutt and C. E. Snively, Commissioners, and Superintendent Layton.

Newspaper Representatives: William Penn Nixon, Inter Ocean; Carter H. Harrison, Times; C. A. Dennis, Daily News; Washington Hering, Staats Zeitung; Elias Colbert, Tribune; J. R. Dunlop, Mail; H. Wilkinson, Globe; R. Michaelis, Freie Presse.

Dr. John H. Rauch, Sanitary Counsel, and Dr. F. W. Reilly, Secretary, represented the STATE BOARD OF HEALTH.

had been entirely by gravity and the cutting of the Ogden-Wentworth ditch had turned into the canal the waters of the Des Plaines, impeded only for a short time by a dam, which soon became useless. The heavy rains absorbed the entire capacity of the canal and the Chicago river flowed out into the lake during most of the year. The rise, culminating in 1885, was due to similar causes—a two-thirds rainfall in July was followed by nearly four times the usual quantity in August. Almost six inches fell August 2, and the contents of the South Fork and of both branches of the river were whirled out into the lake, while the canal was carrying off the surface drainage.

Since 1888 there has been a constantly diminishing removal of the sewage by way of the canal and this, added to the phenomenally low lake level of 1890-91, which has tended to drain the river into the lake, has produced frequent pollution of the water supply. It hardly needs the test tube or the microscope to demonstrate this pollution, the evidence of the senses is sufficient.

In concluding his remarks, Dr. Reilly said:

“Such remedy as is feasible pending the completion of the work of the Sanitary District has been repeatedly pointed out by City Engineer Cheshbrough, by committees of the Citizens’ Association, by the Health Department of the city and by my predecessor in the Secretary’s office of the STATE BOARD OF HEALTH, Dr. John H. Rauch. In his latest official communication on the subject, Dr. Rauch wrote to the Hon. Murry Nelson, President of the Board of Trustees of the Sanitary District of Chicago, as follows:

ILLINOIS STATE BOARD OF HEALTH,  
SECRETARY’S OFFICE, SPRINGFIELD, June 27, 1890.

DEAR SIR:—I am directed by the STATE BOARD OF HEALTH to request the Trustees of the Sanitary District of Chicago to take under advisement the propriety of furnishing such temporary relief to the District and to the people of the valleys of the Des Plaines and the Illinois rivers as may be feasible pending the construction of the channel provided by law, by pumping such a volume of water through the canal as it may be practicable to carry therein, and add thereto such additional service via the Des Plaines river as shall make the total not less than 120,000 cubic feet per minute, the amount to be increased at the rate of from 12,000 to 14,000 cubic feet for each additional 100,000 of population in the Sanitary District that may drain into the Chicago river and its branches. In furtherance of this purpose, it is very important that you cause to be made, as soon as practicable, a comprehensive investigation and survey of the Illinois and Michigan canal to determine its capacity and to what



extent its capacity may be increased. In this request the Board of Canal Commissioners also joins.

The STATE BOARD OF HEALTH believes that the Sanitary District may, with great propriety, act in the premises, the more especially as any scheme of temporary relief, which is now urgently needed, should be in harmony with the ultimate plan to be carried out. Such action by a body charged with the proper drainage of the District will be assurance to the people of the Illinois valley and of the State that all interests will be duly guarded.

It is hoped, also, that your Board will, as soon as possible, take up a full investigation of the sewage product of Chicago as a supplement to the work done by the STATE BOARD in 1888-89 in tracing the effect of this sewage in the DesPlaines and Illinois rivers after it leaves Chicago.

This BOARD is greatly interested in the investigation of all matters which pertain to floodwaters upon the basin and about the Sanitary District; of the habits of the streams of the Illinois watershed; and of the effect upon the Illinois valley, from a sanitary standpoint, of this additional flow of water. For these reasons it urges the propriety of your obtaining full information upon all these questions which profoundly interest the people of various sections of the State outside the Sanitary District, and which are of concern to about one-half the population of the State.

This BOARD will coöperate so far as possible, since it is its duty to look after sanitary interests of all concerned.

I herewith enclose a copy of a communication on the same subject sent to the Mayor and the City Council of the city of Chicago some time ago.

I have the honor to be, very respectfully,

JOHN H. RAUCH, *Secretary.*

In the communication referred to, under date November 27, 1889, Dr. Rauch said:

“Owing to the increased quantity of sewage that empties into the Chicago river, and the small amount removed by the Bridgeport pumps, the river during the last season was as offensive as at any time before the deep cut in the canal was made and, in fact, as at any time in the history of the city. Not only is the river a nuisance in its present condition, but it is a positive source of danger to the health of the citizens of Chicago, which will increase with its growth in population. The sanitary interests of Chicago and the communities in the Des Plaines and Illinois valleys imperatively demand that the sewage of Chicago, pumped into the canal, shall be diluted on the minimum scale of 14,000 cubic feet per minute for every 100,000 people who drain into the Chicago river. In winter, when oxidation is retarded by ice formations, shutting out light and air, by low temperature and by impeded motion, a greater rather than a less quantity should be pumped. This is not surmise. It is absolute certainty, fully proved by careful investigations and recent analyses. As a matter of fact, the average quantity pumped during the period covered by the analyses referred to did not exceed 45,000 cubic feet

a minute during the summer of 1888, nor was it more than 38,000 cubic feet a minute during the winter of 1888-89. The larger quantity is less than one-half the minimum dilution now necessary to prevent nuisance in the river and at Joliet. The sanitary interests of Chicago require the increase of pumping to at least 120,000 cubic feet a minute at this time. With comparatively small outlay the canal can be made to carry 100,000 cubic feet a minute, though probably one or two bridges would have to be raised.

"With the sewage of more than 800,000 people already discharging into the Chicago river, the minimum dilution above specified, 14,000 cubic feet a minute to the 100,000 of people, requires at the present time that at least 120,000 cubic feet a minute be pumped. The heavy rainfall of July 27th and 28th, 1889, of over four inches, carried the accumulated sewage beyond the crib and polluted the water supply. Had it not been for the notice given to boil the water before using, and the remarkably low and equable temperature for more than a month after this heavy rainfall, the influence of this pollution of the water would have been much more marked upon health and life than it was. Under certain circumstances two inches of rainfall in twenty-four hours in this city is a menace to its water supply. Spring freshets or a rainfall in one day of three inches with the present pumping capacity always pollute the water. As compared with the benefits to be derived from this work of dilution and removal of the sewage, the cost of this temporary undertaking should cause no hesitation. It is then a matter of the most vital importance and an absolute sanitary necessity that provision be made for pumping the amount of water mentioned, and this provision should be made without delay. The conditions that obtain are a constant menace to the health of the people. Delay in this matter by those in authority, so far as the people of Chicago are concerned, is simply criminal and, as regards the adjoining communities that are imposed upon by this nuisance, it is an outrage."

Dr. Reilly added that this communication—almost prophetic in view of the developments since it was written in November, 1889—was endorsed by the STATE BOARD OF HEALTH and its transmission to the mayor and city council was authorized by the BOARD. "It expresses the views of the BOARD at the present time as to what should be done, and, while recognizing the unusual demands upon the present city administration, the BOARD urges that the remedy of the insanitary conditions which threaten the lives of the citizens and the success of the World's Fair is an imperative necessity."

Nothing of practical value resulted from this conference, and the further investigation of typhoid-fever prevalence was resumed in an attempt to distribute on a map of the city the deaths from this disease during the previous year, with the object of

securing a graphic presentation of the relations between locality, population, water supply, sewerage, etc., and the greater or lesser prevalence of the disease. Through the influence of the Hon. L. E. Cooley, one of the trustees of the Sanitary District, this work was undertaken by the Engineering Department of the District, under the personal supervision of Mr. Thos. T. Johnston, First Principal Assistant Engineer. To the intelligent interest of Messrs. Cooley and Johnston, the single map, originally projected by the Secretary, has been developed into a suite of eleven (11) maps and twenty (20) diagrams, forming an exhaustive sanitary exhibit of Chicago with reference to the prevalence and causation not only of typhoid fever, but of the zymotic or preventable diseases generally.

Except the map or chart of the Chicago watershed, these maps are of uniform size, measuring 44 by 76 inches, on a scale of three inches to the mile, and show the boundaries of the wards and of each city block. In addition to the usual ward boundaries, the area of the city is divided on these maps into sixteen assumed sections or districts, indicated by red boundary lines and numbers. These districts are based, in a general way, upon conditions of population, occupancy, etc., and may be thus described:

District No. 1. Mainly a thickly settled residence district of the wealthier classes: generally high ground, well drained and long settled. Boundaries: North, Fullerton; south, Chestnut, Division; Centre, the river; east, the lake; west, State, Wells, Sedgwick, Larrabee.

Dist. No. 2. Mainly working people of mixed classes: thickly settled; long occupied; well drained; ground medium height. Boundaries: North, Fullerton, Centre, Division, Chestnut; south, the river; east, State, Wells, Sedgwick, Larrabee; west, the river.

Dist. No. 3. Mainly working people of factory class; thinly settled, new population, high ground, partly drained. Boundaries: North, Graceland; south, Fullerton, the river; east, Clark; west, Western, the river.

Dist. No. 4. Mainly a thinly settled residence district, of the wealthier classes and of semi-suburban character. Newly settled; ground rolling—high and low—drainage partly developed, but good. Boundaries: North, Church road; south, Graceland, Clark, Fullerton; east, the lake; west, Clark, Western.

Dist. No. 5. Mainly working people of mixed classes: thickly settled; long populated but of rapid growth in last decade; high ground, well drained generally. Boundaries: North, Belmont, the river; south, Lake, Kinzie, Division; east, the river; west, May, Robey, Kedzie.

Dist. No. 6. A mixed population, largely male. Boarding houses, slums, wholesale houses. Ground medium height, long settled, drainage complete. Boundaries: North, Lake; south, Van Buren; east the river; west, Centre, Ann.

Dist. No. 7. Mainly residence district, of middle or wealthier classes. Neither thickly nor thinly settled. Ground high; newly settled in the main; drainage partly complete. Boundaries: North, Division, Kinzie; south, C., B. & Q. R. R., Taylor; east, Robey, May, Ann, Centre, Ashland; west, Fortieth.

Dist. No. 8. Mainly working people, in large part connected with lumber industry. Thickly settled; ground low or filled up in recent years; drainage mainly complete. Rapid growth in recent years. Boundaries: North, C., B. & Q. R. R., Taylor, Van Buren; south, I. & M. canal, the river; east, I. & M. canal, the river; west, Centre, Ashland, C., B. & Q. R. R., Fortieth.

Dist. No. 9. Business district; hotels, large buildings; long settled, but of some growth in recent years; ground level and drainage complete. Boundaries: North, the river; south, Twelfth; east, the lake; west, the river.

Dist. No. 10. Mainly boarding houses of the better class, railroad yards; ground medium height, well drained. Boundaries: North, twelfth; south, Sixteenth, Twenty-sixth; east, the lake; west, Clark, the river.

Dist. No. 11. Somewhat mixed, thickly settled residence district, but mainly of the wealthier classes; high ground, well drained; north end long settled, south end recently. Boundaries: North, Twenty-sixth, the lake; south, Fifty-fifth, Thirty-ninth; east, the lake; west, Clark, State.

Dist. No. 12. Mainly working people of mixed classes; thickly settled; ground medium height; long settled and well drained. Boundaries: North, Sixteenth, the river, I. & M. canal; south, Thirty-third; east, Clark; west, the river.

Dist. No. 13. Working people, mainly occupied about stock yards and packing houses, also about railroad yards. The Union Stock Yards and the large meat packing houses are central in this district; ground tends to be low, partially drained; settled comparatively recently and of rapid growth. Boundaries: North, Thirty-ninth, Thirty-third; south, Fifty-fifth; south, Eighty-seventh; east, Stony Island avenue; west, Western avenue.

Dist. No. 14. Scattered and mixed population, probably half of the wealthier classes; ground generally low and drainage imperfect. Boundaries: North, 55th; south, 87th; east, Stony Island Avenue; west, Western Avenue.

Dist. No. 15. Mainly working people employed in the iron and other industries at South Chicago; ground low; newly settled; partly drained. Boundaries: North, 67th, the lake; south, C. & W. I. Ry., 114th; east, the lake, State line; west, Stony Island Avenue, C. & W. I. Ry.

Dist. No. 16. Pullman district, mainly of the better class of working people, largely interested in Pullman car works; ground high; well drained in a notable degree; rapid growth, comparatively recent settlement. Boundaries: North, 95th; south, Lake Calumet, 119th; east, Stony Island Avenue, Lake Calumet; west, State Street.

Districts Nos. 8, 12 and 13, embracing the region about the Stock Yards, the South Fork and Bridgeport, are subdivided by yellow lines and numbers into nine sub-districts, as follows:

District No. 8 into Sub-Districts Nos. 17 and 25.

District No. 12 into Sub-District No. 18 and parts of Nos. 19 and 20.

District No. 13 into Sub-Districts Nos. 21, 22, 23 and 24, and parts of Nos. 19 and 20.

These Sub-Districts have been made for the further study of variations in zymotic death-rates as affected by the special insanitary conditions of the regions above specified.

In the margin of each of the six mortality maps, are explanatory notes and tables of the typhoid and other zymotic death-rates per 1,000 in each District and Sub-District.

Mortality Map No. 1, shows the locality of each death from typhoid fever, during the year 1890, by a red dot on the city block where it occurred. The data were obtained from the records of the City Health Department, the County Hospital and other institutions—the street and number at which each fatal case occurred or from which a fatal case was removed to the County Hospital or other institution being noted.

Maps Nos. 2 and 3 set forth similar information as to typhoid fever mortality during the years 1891 and 1892 respectively.

Other zymotic or preventable diseases have been grouped into three classes— 1. Miasmatic, embracing diphtheria, cerebro-spinal fever, scarlet fever, measles. 2. Diarrhœal, embracing diarrhœa, dysentery, cholera morbus, cholera infantum. 3. Malarial, embracing intermittent, remittent, pernicious and other fevers of malaria. The number and locality of deaths from each of these groups of diseases and for each of the years, 1890, 1891 and 1892, are indicated on Mortality Maps Nos. 4, 5 and 6, in a manner similar to that of the typhoid-fever maps—a red dot indicating a death from one of the miasmatic group, a green dot, a death from one of the diarrhœal group, and a blue dot, a death from one of the malarial group.

Map No. 7 is a triplicate population map, showing the population and its distribution in 1880, its growth and distribution in 1886 and in 1892 respectively. For obvious reasons this is one of the most useful and important maps of the series and a corresponding amount of painstaking labor has been bestowed thereon.

In order to determine death rates, the population of the community, or parts of the community in which any set of deaths has occurred, must be known. In the case of Chicago it happens, fortunately, that census returns in minute detail are available, and, therefore, it has been practicable to make somewhat novel death-rate determinations in various parts of the city and according to different classes of population—these latter the bases of the “Assumed Districts.”

The census returns, National and school, for the three periods selected, have been the basis of compilation. A map on a large scale was taken for each period and the boundaries of, and number of people in, each enumeration district were marked thereon. The population in each district was then represented on Map No. 7 by a dot, as shown. Each dot represents 500 people. It is, of course, possible that an error of 250 may be shown in any particular enumeration district, the error being thrown into an adjoining district. Any area, however, that it may be useful to consider in the investigation contains a number of enumeration districts, so that the error becomes quite small. Moreover, it cannot exceed 250 in any area that it would be profitable to investigate.

On this map the black dots show the population of Chicago and its distribution in 1880. The green dots show the increase and the distribution of the increase between 1880 and 1886, and the black and green dots together show the aggregate population in 1886. Similarly the red dots show the increase and its distribution between 1886 and 1892, and the aggregate of all the dots shows the aggregate population in 1892.

For the purpose of computing death-rates from the zymotic diseases in 1890 and in 1891 similar data were used, but these are not charted on No. 7.

The death rate data thus graphically presented on Maps Nos. 1-7, show conclusively that the manner in which people live or have to live is the most potent element governing mortality among them due to the diseases under consideration. It is only by comparing the death rates among similar classes that special causes for the virulence of the diseases may be determined.

Perhaps the best measure in this case of the manner in which people live is derived from the density of population. During his connection with the Chicago Drainage and Water Supply

Commission, Mr. Johnston made some study of population densities and incidentally compiled the following table showing the relation between the character of populations and the areas upon which they live.

*Normal Densities of population for Chicago, according to occupation. Per acre and per square mile; also thousands of people per quarter of square mile.*

Density per acre.	Thousands per quarter section.	Population per square mile.	Character of population.
$\frac{1}{4}$	0.04	160	Farming, lumber yards, stock region and similar character.....
1	0.16	640	Gardening.....
2	0.32	1,280	{ Village suburb.....
4	0.48	1,920	
4	0.64	2,560	{ Village.....
5	0.80	3,200	
10	1.60	6,400	Suburban—thinly settled.....
15	2.40	9,600	Suburban—average.....
20	3.20	12,800	Dense city suburban—first-class residences—central business sections.....
30	4.80	19,200	Manufacturing district—agricultural works—car shops, planing mills—thinly settled residence of first-class order.....
40	6.40	25,600	Densely settled fine residence quarter—second-class suburban population.....
50	8.00	32,000	{ Residence district—middle-class people.....
60	9.60	38,400	
70	11.20	44,800	Densely settled residence district.....
70	12.80	51,200	{ Boarding house district—semi-business streets like Halsted.....
90	14.40	57,600	
100	16.00	64,000	
110	17.60	70,400	{ Laboring class city population densely settled.
120	19.20	76,800	
130	20.80	83,200	
140	22.40	89,600	
150	24.00	96,000	
25	4.00	16,000	Manufacturing—as at Pullman—population needs as much ground to work on as to live on.....

Using this table in connection with the Population Map (No. 7) some conclusion may be drawn as to the character of people in any particular neighborhood. Studied in connection with death rate, population density will readily be seen to be a measure of mortality. People should not be allowed to live so thickly settled as in some quarters, if there be any way to prevent it. In 1882 Chicago had 153 acres in the 18th ward which had a population of 22,164—a density of 144 per acre. This area is now in the 23d ward. See District No. 2 on maps and diagrams.

Map No. 8 illustrates the water-supply system of Chicago. It has been compiled from the city records and shows the main distributing pipes, the pumping stations, the points in Lake Michigan at which water is taken and the location and dimensions of the water intakes. Diagram No. 1 is a detail of this map and shows the arrangement of the water-tunnel intakes at the North Side pumping station.

Maps Nos. 9 and 10 depict the sewer system and contours of the site of Chicago, respectively, and are essentially self-explanatory, as is also the chart of the Chicago water-shed.

The most interesting and significant feature of the Contour Map pertains to the central part of the city, where the original level of the ground is below the 15-ft. contour. By far the larger part of this area is what may be called made ground—much of it being “made” of garbage. The filling or making of it has extended over a long series of years and has progressed in a direction radial from the heart of the city. The larger area of recent filling probably lies in a direction northeast from the Bridgeport pumping station, though much of it is found in the vicinity of Milwaukee avenue.

Death-rate diagrams 2 to 18, inclusive, represent graphically the manner in which death-rates vary in different parts of the city and among different classes of the population. These diagrams have been projected from the mortality maps to which they refer and their data are embodied in the appended tables (Nos. 2, 3 and 4). Two general conclusions may be drawn from a comparative study of these diagrams and their related maps: 1. That there is a persistent excess of typhoid-fever deaths north of the main river in all three years, 1890, 1891, 1892—comparing similar classes of population north and south of the river. It is the section mainly supplied during these years with water from the North Shore inlet. 2. That there is a persistent excess of diarrhœal and miasmatic deaths in the region to which the South fork of the Chicago river and the Bridgeport pumping station are central. This is the region of densest filth.

Diagrams 19 and 20 show two typical instances of lake pollution on the dates given in each, when the disgusting contents of the river cesspool went directly into the water-supply intakes. The first (No. 19) in February, 1887, shows the boundaries of



the fluid filth off the mouth of the river on several days and shows how and where it entered at the two-mile crib. It also shows the disposition and movement of the sewage with reference to the currents existing on those days. The second (No. 20) in May, 1892, shows the disposition and movement of the black fluid under the influence of a different set of currents the Hyde Park tunnel this time taking the radical pollution. During this latter period, May and June, 1892, there was an almost incessant flow of storm-water sewage into the lake, swashed back and forth in front of the city by varying currents, and menacing, if not actually polluting, the whole water supply of Chicago.

Although the data set forth in these maps and diagrams have been studied only in the most general way, certain fundamental tabular statements have been prepared which form the basis of the propositions and deductions with which this pamphlet closes.

The more important of the tabular statements are here given:

TABLE NO. 1.—*Distribution of Population drained in and about Chicago and location of Drainage—1886, 1890, 1892.*

Population draining into—		1886.	1890.	1892.
North Branch..	{ Above Fullerton Avenue.....	20,500	56,500	72,000
	{ Below Fullerton Avenue.....	202,000	289,000	315,500
Main Branch...	{ North Side.....	62,000	79,500	86,000
	{ South Side.....	4,500	7,500	5,500
South Branch..	{ West Side.....	265,000	353,000	401,500
	{ South Side.....	67,500	76,500	81,500
River north of Bridgeport.....		621,500	862,000	995,000
South Fork.....	{ North of 39th Street.....	32,500	51,500	61,000
	{ South of 39th Street.....	43,000	93,500	138,500
Main River and Branches.....		697,000	1,007,000	1,194,500
Lake Michigan.	{ North of River.....	5,000	9,500	13,500
	{ River to 39th Street.....	67,500	90,500	103,500
	{ 39th Street to 87th Street.....	27,000	51,000	68,500
Population in Sanitary District drained.....		796,500	1,158,000	1,380,000
City population outside Sanitary District, including South Chicago.....			46,500	58,000
Total city population.....		701,000	1,204,500	1,438,000

TABLE No 2—*Population, Number of Deaths and Death Rates per 1,000 by Wards for 1890, 1891, 1892.*

1890.

WARD.		TYPHOID.		MIASMATIC.*		DIARRHOEAL†		MALARIAL‡	
No.	Population.	No.	Rate. Per 1000.	No.	Rate Per 1000.	No.	Rate Per 1000.	No.	Rate Per 1000.
1	44,537	8	0.18	12	0.27	21	0.47	1	0.02
2	30,562	7	0.23	16	0.52	17	0.56	2	0.07
3	30,511	11	0.36	28	0.92	14	0.46	2	0.07
4	31,345	12	0.38	19	0.61	19	0.61	3	0.10
5	40,642	31	0.76	62	1.53	69	1.79	8	0.07
6	45,199	27	0.60	70	1.55	131	2.90	6	0.13
7	45,669	22	0.48	44	0.96	58	1.27	2	0.04
8	36,539	21	0.58	42	1.15	67	1.83	2	0.05
9	41,441	30	0.72	40	0.96	89	2.15	1	0.02
10	42,925	26	0.61	54	1.26	96	2.24	4	0.09
11	37,182	15	0.40	19	0.51	22	0.59	3	0.08
12	52,127	17	0.33	41	0.79	40	0.77	2	0.04
13	37,501	26	0.69	28	0.75	35	0.93	4	0.11
14	40,724	56	1.38	78	1.92	61	1.50	5	0.12
15	42,342	39	0.92	55	1.33	86	2.03	4	0.09
16	58,699	70	1.19	65	1.11	123	2.10	4	0.07
17	28,333	35	1.24	18	0.64	46	1.62	9	0.32
18	35,126	12	0.34	17	0.48	32	0.91	1	0.03
18	48,590	13	0.27	54	1.11	90	1.85	0	0.00
20	27,126	27	1.00	24	0.89	33	1.22	1	0.04
21	35,335	31	0.88	38	1.08	33	0.93	3	0.08
22	36,505	36	0.99	44	1.21	25	0.69	3	0.08
23	41,519	47	1.13	70	1.69	52	1.25	7	0.17
24	35,120	19	0.54	20	0.57	21	0.69	2	0.06
25	23,788	32	1.35	35	1.47	14	0.59	7	0.29
26	28,003	37	1.32	46	1.64	56	2.00	7	0.25
27	11,308	5	0.44	9	0.79	12	1.06	1	0.09
28	9,085	5	0.55	10	1.10	15	1.65	1	0.11
29	31,133	22	0.71	40	1.29	53	1.70	2	0.06
30	49,718	26	0.52	76	1.53	105	2.12	6	0.12
31	20,237	12	0.59	23	1.14	28	1.38	2	0.10
32	29,412	6	0.20	30	1.02	27	0.92	2	0.07
33	20,230	21	0.72	32	1.10	43	1.47	2	0.07
34	29,611	21	0.71	27	0.91	49	1.65	10	0.34

[Deaths from typhoid fever in public institutions, 283.]

\* Includes diphtheria, cerebro-spinal fever, scarlet fever, measles.

† Includes diarrhoea, dysentery, cholera morbus, cholera infantum

‡ Includes intermittent, remittent, pernicious malarial fevers.

Table No. 2—Continued.

1891.

WARD.		TYPHOID.		MIASMATIC.*		DIARRHOEAL.		MALARIAL‡	
No.	Population.	No.	Rate per 1000.	No.	Rate per 1000.	No.	Rate per 1000.	No.	Rate per 1000.
1	46,827	16	0.34	19	0.41	25	0.53	2	0.04
2	32,756	15	1.68	24	0.73	19	0.58	2	0.06
3	32,724	22	1.67	25	0.76	26	0.79	5	0.15
4	33,653	17	0.51	31	0.94	28	0.85	2	0.06
5	42,954	64	1.49	83	1.93	80	1.86	4	0.09
6	48,851	71	1.46	72	1.48	128	2.62	4	0.08
7	47,466	35	0.74	57	1.11	87	1.84	2	0.03
8	38,222	39	1.02	55	1.44	56	1.47	1	0.03
9	43,236	56	1.29	83	1.92	80	1.85	1	0.02
10	49,701	57	1.19	116	2.33	90	1.81	3	0.06
11	39,883	34	0.85	44	1.10	43	1.08	6	0.15
12	56,457	57	1.01	70	1.40	45	0.80	10	0.18
13	40,036	42	1.00	79	1.96	59	1.47	2	0.05
14	45,017	105	2.33	107	2.38	65	1.44	7	0.15
15	49,562	108	2.18	95	1.92	107	2.16	8	0.16
16	61,519	167	2.72	145	2.36	127	2.17	6	0.10
17	29,889	76	2.55	54	1.80	45	1.51	8	0.27
18	37,617	20	0.53	18	0.48	33	0.88	1	0.03
19	51,381	46	0.90	70	1.74	75	1.46	2	0.06
20	23,711	62	2.66	35	1.22	47	1.64	3	0.19
21	36,999	56	1.53	32	0.87	37	1.01	2	0.06
22	38,105	55	1.45	54	1.42	65	1.71	0	0.00
23	43,694	91	2.08	60	1.58	65	1.49	0	0.11
24	37,797	30	0.79	29	0.77	17	0.45	5	0.13
25	27,060	38	1.40	48	1.78	24	0.89	4	0.15
26	32,402	35	1.08	40	1.51	63	1.95	4	0.12
27	13,035	16	1.23	32	2.46	22	1.69	2	0.15
28	19,865	4	0.37	21	1.93	16	1.47	1	0.09
29	34,673	28	0.81	44	1.27	88	2.54	4	0.12
30	59,483	53	0.89	81	1.36	138	2.32	6	0.10
31	27,396	18	0.66	42	1.54	40	1.46	6	0.22
32	33,598	32	0.94	26	1.77	23	0.68	2	0.06
33	33,712	36	1.07	53	0.57	52	1.54	6	0.18
34	37,795	32	0.85	98	2.60	53	1.40	10	0.26

[Deaths from typhoid fever in public institutions, 363.]

\* Includes diphtheria, cerebro-spinal fever, scarlet fever, measles.

† Includes diarrhoea, dysentery, cholera morbus, cholera infantum.

‡ Includes intermittent, remittent, pernicious malarial fevers.

**Table No. 2—Concluded.**  
**1892.**

WARD.		TYPHOID.		MIASMATIC.*		DIARRHOEAL†		MALARIAL‡	
No.	Population.	No.	Rate per 1000.	No.	Rate per 1000.	No.	Rate per 1000.	No.	Rate per 1000
1	48,757	5	0.10	10	0.20	16	0.33	1	0.02
2	34,951	17	0.49	32	0.92	24	0.69	1	0.03
3	31,938	31	0.89	35	1.02	15	0.43	1	0.03
4	34,702	20	0.57	26	0.75	15	0.43	3	0.03
5	45,267	63	1.39	85	1.88	60	1.35	2	0.04
6	52,503	57	1.09	76	1.45	123	2.34	3	0.05
7	49,264	42	0.85	39	0.79	60	1.22	0	0.00
8	39,905	33	0.83	53	1.33	61	1.53	1	0.02
9	45,032	44	0.96	52	1.13	76	1.66	1	0.02
10	56,477	57	1.01	73	1.29	64	1.13	1	0.02
11	42,585	35	0.82	36	0.85	28	0.66	5	0.12
12	60,788	50	0.82	53	0.87	43	0.71	9	0.15
13	42,572	52	1.22	67	1.57	38	0.89	1	0.02
14	49,310	47	0.95	64	1.30	48	0.97	1	0.02
15	56,783	65	1.14	81	1.43	72	1.27	1	0.02
16	64,340	66	1.03	72	1.12	113	1.76	1	0.02
17	31,446	24	0.76	39	1.24	29	0.92	2	0.06
18	40,109	19	0.47	17	0.42	32	0.80	1	0.10
19	54,172	33	0.61	55	1.02	74	1.37	2	0.04
20	30,296	40	1.32	36	1.19	23	0.76	2	0.06
21	38,663	40	1.03	44	1.14	36	0.93	1	0.03
22	39,706	33	0.83	43	1.08	28	0.71	0	0.00
23	45,870	51	1.11	66	1.44	67	1.46	2	0.04
24	40,474	16	0.40	13	0.32	25	0.57	0	0.00
25	30,333	24	0.79	36	1.19	10	0.33	1	0.03
26	36,802	36	0.98	48	1.30	41	1.11	4	0.11
27	14,702	11	0.75	12	0.82	14	0.95	1	0.07
28	12,645	7	0.55	23	1.82	26	2.06	1	0.08
29	38,207	17	0.45	45	1.18	80	2.10	2	0.05
30	69,249	44	0.64	114	1.65	136	1.97	8	0.12
31	34,543	14	0.41	44	1.27	28	0.81	2	0.06
32	38,385	21	0.55	48	1.25	19	0.50	1	0.03
33	38,194	27	0.71	74	1.94	35	0.92	8	0.21
34	45,980	38	0.83	59	1.28	39	0.85	5	0.11

[Deaths from typhoid fever in public institutions, 310.]

\* Includes diphtheria, cerebro-spinal fever, scarlet fever, measles.

† Includes diarrhoea, dysentery, cholera morbus, cholera infantum

‡ Includes intermittent, remittent, pernicious malarial fevers.

TABLE NO. 3—*Population, Deaths and Rates per 1,000 of Population, by Assumed Districts, for 1890, 1891, 1892.*

BOUNDARIES OF ASSUMED DISTRICTS.

Dist.	North.	South.	East.	West.
1	Fullerton .....	River .....	Lake .....	State .....
	.....	Chestnut .....	.....	Wells .....
	.....	Division .....	.....	Sedgwick .....
	.....	Center .....	.....	Larrabee .....
2	Fullerton .....	River .....	State .....	River .....
	Center .....	.....	Wells .....	.....
	Division .....	.....	Sedgwick .....	.....
	Chestnut .....	.....	Larrabee .....	.....
3	Graceland .....	River .....	Clark .....	River .....
	.....	Fullerton .....	.....	Western .....
4	Churel road .....	Graceland .....	Lake .....	Clark .....
	.....	Clark .....	.....	Western .....
	.....	Fullerton .....	.....	.....
5	River .....	Lake st .....	River .....	May .....
	Belmont .....	Kinzie .....	.....	Robey .....
	.....	Division .....	.....	Kedzie .....
6	Lake st .....	Van Buren .....	River .....	Center .....
	.....	.....	.....	Ann .....
7	Division .....	C., B. & Q. Ry .....	Robey .....	40th .....
	Kinzie .....	Taylor .....	May .....	.....
	.....	Lake .....	Ann .....	.....
	.....	.....	Center .....	.....
	.....	.....	Ashland .....	.....
8	C., B. & Q. Ry .....	I. & M. canal .....	I. & M. canal .....	Center .....
	Taylor .....	River .....	River .....	Ashland .....
	Van Buren .....	.....	.....	C., B. & Q. Ry., 40th ..
9	River .....	12th .....	Lake .....	River .....
10	12th .....	16th .....	Lake .....	River .....
	.....	26th .....	.....	Clark .....

Table No. 3—Continued.

Dist.	North.	South	East.	West.
11	26th ..... Lake..... .....	55th ..... 39th ..... .....	Lake..... ..... .....	Clark ..... State..... .....
12	16th ..... River..... I. & M. canal .....	33d ..... ..... .....	Clark..... ..... .....	River ..... I. & M. canal ..... .....
13	39th ..... 33d .....	55th ..... .....	Clark..... State .....	Western..... .....
14	55th .....	37th .....	Stony Island.....	Western.....
15	67th ..... Lake.....	C. & W. I. Ry..... 114th .....	Lake..... State line.....	Stony Island..... C. & W. I. Ry.....
16	95th ..... .....	Lake Calumet ..... 119th .....	Stony Island..... Lake Calumet .....	State st..... .....

## BOUNDARIES OF SUB-DISTRICTS.

17	16th St..... C. B. & Q. R. R.....	River..... .....	River..... .....	Crawford..... C., B. & Q. R. R.....
18	River..... .....	33d and 26th..... .....	Wentworth..... Clark.....	Halsted..... .....
19	River & 33d..... .....	39th St..... .....	Halsted..... Stewart Ave.....	South Fork ..... .....
20	River.....	39th St.....	South Fork .....	Western.....
21	39th St.....	47th St.....	State .....	Western.....
22	47th St.....	55th St.....	State .....	Western.....
23	39th & 47th..... .....	55th St..... .....	Ashland..... Halsted.....	Western..... .....
24	39th St.....	55th St.....	State .....	Halsted.....
25	Van Buren..... Taylor.....	16th St..... .....	River..... .....	Centre..... Ashland.....

Table No. 3—Continued.

*Population, Deaths and Rates per 1000 during 1890.*

DIST.	POPULATION.	TYPHOID.		MIASMATIC.		DIARRHOEAL.		MALARIAL.	
		Deaths	Rates per 1000.	Deaths	Rates per 1000.	Deaths	Rates per 1000.	Deaths	Rates per 1000.
1	45,509	34	.75	33	.73	23	.51	3	.07
2	122,000	122	1.00	175	1.44	109	.89	8	.06
3	38,000	58	1.53	58	1.52	41	1.08	8	.21
4	11,500	7	.63	14	1.22	5	.43	2	.17
5	174,500	196	1.13	215	1.23	268	1.53	16	.01
6	18,000	11	.61	16	.88	28	1.55	1	.05
7	148,000	46	.28	137	.92	100	.68	11	.07
8	163,500	92	.57	208	1.27	294	1.80	3	.02
9	44,500	10	.22	14	.31	18	.40	0	.00
10	30,500	7	.23	20	.65	19	.62	3	.10
11	71,500	25	.35	56	.78	37	.52	5	.07
12	66,500	37	.56	101	1.52	127	1.91	5	.07
13	91,000	49	.51	132	1.45	160	1.76	9	.10
14	55,500	27	.49	50	.90	59	1.06	6	.11
15	27,500	18	.66	29	1.06	34	1.23	3	.11
16	16,000	9	.56	7	.44	9	.56	0	.00
17	95,000	58	.61	92	.97	160	1.58	1	.01
18	40,500	23	.56	56	1.38	54	1.33	3	.07
19	35,000	27	.77	41	1.17	90	2.58	4	.11
20	10,500	1	.09	30	2.86	19	1.81	1	.09
21	28,500	12	.42	33	1.16	45	1.58	2	.07
22	29,000	18	.62	50	1.72	77	2.65	5	.17
23	18,500	9	.48	41	2.22	58	3.14	2	.11
24	39,000	21	.54	42	1.08	33	.85	5	.13
25	90,000	35	.39	105	1.17	135	1.50	2	.02

Table No. 3—Continued.

*Population, Deaths and Rates per 1000 during 1891.*

DIST.	POPULATION.	TYPHOID.		MIASMATIC.		DIARRHOEAL.		MALARIAL.	
		Deaths	Rates per 1000.	Deaths	Rates per 1000.	Deaths	Rates per 1000.	Deaths	Rates per 1000.
1	53,200	36	.68	57	1.07	25	.47	5	.09
2	128,000	222	1.75	178	1.39	121	.94	12	.09
3	42,500	43	1.00	83	1.95	36	.85	8	.18
4	12,200	13	1.07	20	1.64	8	.65	2	.16
5	191,200	349	1.83	425	2.22	201	1.05	21	.11
6	23,500	20	.68	19	.64	24	.81	1	.03
7	158,700	123	.78	234	1.47	129	.81	17	.11
8	188,700	176	.93	368	1.95	266	1.41	6	.03
9	46,500	15	.32	16	.33	15	.32	2	.04
10	31,200	18	.58	39	1.25	22	.71	1	.03
11	83,700	47	.57	92	.86	47	.57	7	.08
12	70,500	89	1.27	105	1.49	85	1.41	7	.10
13	100,500	81	.81	191	1.90	243	2.42	9	.09
14	65,700	51	.77	51	.78	73	1.11	9	.14
15	31,700	26	.81	51	1.61	41	1.29	8	.25
16	20,000	8	.40	29	1.45	6	.30	5	.25
17	106,000	86	.81	201	1.90	161	1.52	1	.01
18	42,700	55	1.29	91	2.13	58	1.36	2	.05
19	37,500	46	1.23	58	1.53	67	1.79	3	.08
20	12,000	16	1.33	22	1.83	13	1.08	0	.00
21	32,500	15	.46	42	1.29	75	2.31	5	.15
22	35,700	24	.67	75	2.10	98	2.75	3	.08
23	23,500	13	.55	46	1.95	89	3.80	3	.13
24	44,200	26	.59	63	1.56	80	1.81	5	.11
25	93,500	91	.97	167	1.78	115	1.23	5	.05



Table No. 3—Continued.

*Population, Deaths and Rates per 1000 during 1892.*

DIST.	POPULATION.	TYPHOID.		MIASMATIC.		DIARRHOEAL.		MALARIAL.	
		Deaths	Rates per 1000.	Deaths	Rates per 1000.	Deaths	Rates per 1000.	Deaths	Rates per 1000.
1	61,000	34	0.56	26	0.43	21	0.34	0	.00
2	134,000	146	1.09	176	1.31	156	1.16	5	0.04
3	47,000	45	0.96	71	1.51	46	0.98	4	0.09
4	13,000	15	1.15	13	1.00	5	0.38	1	0.08
5	208,000	227	1.09	272	1.31	273	1.31	9	0.04
6	40,000	19	0.48	17	0.43	32	0.80	4	0.10
7	170,500	142	0.83	184	1.08	113	0.66	15	9.09
8	214,000	179	0.84	228	1.07	321	1.50	4	0.02
9	48,500	5	0.10	10	0.21	16	0.33	1	0.02
10	32,000	17	0.53	32	1.00	24	0.75	1	0.03
11	96,000	68	0.71	92	0.96	39	0.41	4	0.04
12	74,500	92	1.24	129	1.73	137	1.84	3	0.04
13	110,000	72	0.66	162	1.47	237	2.16	10	0.09
14	76,000	59	0.78	115	1.51	69	0.91	6	0.08
15	36,000	25	0.69	72	2.00	35	0.97	8	0.22
16	24,000	9	0.37	12	0.50	19	0.79	2	0.08
17	117,000	101	0.86	116	0.99	168	1.43	1	0.01
18	45,000	63	1.40	85	1.89	59	1.31	2	0.04
19	40,000	45	1.12	57	1.42	106	2.65	2	0.05
20	13,500	12	0.89	19	1.41	17	1.26	1	0.07
21	36,500	17	0.47	42	1.15	77	2.11	2	0.06
22	42,500	23	0.54	71	1.67	105	2.47	5	0.12
23	28,500	16	0.56	44	1.54	100	3.50	4	0.14
24	49,500	24	0.48	68	1.37	78	1.58	3	0.06
25	97,000	78	0.80	112	1.15	149	1.54	3	0.03

TABLE No. 4—*Zymotic Diseases.—Death Rates per 1000 of Population per annum—1890, 1891, 1892.*

Year,	Population.	Typhoid.	Miasmatic	Diarrhœal	Malarial.
1890.....	1,208,000	1.00	1.06	1.19	0.10
1891.....	1,322,000	1.51	1.53	1.25	0.11
1892.....	1,438,000	1.04	1.26	1.07	0.10

*Zymotic Diseases: Deaths and Death Rates per 1000, by Months—1890.*

MONTHS.	TYPHOID.		MIASMATIC.		DIARRHŒAL.		MALARIAL.	
	Deaths.	Rate.	Deaths.	Rate.	Deaths.	Rate.	Deaths.	Rate.
January.....	53	0.53	140	1.39	38	0.38	8	0.08
February.....	136	1.35	131	1.30	41	0.41	11	0.11
March.....	103	1.02	155	1.53	21	0.21	12	0.12
April.....	45	0.45	107	1.06	21	0.21	9	0.09
May.....	82	0.81	93	0.92	22	0.22	15	0.15
June.....	107	1.06	81	0.80	85	0.84	9	0.09
July.....	86	0.85	70	0.70	571	5.66	7	0.07
August.....	115	1.14	75	0.74	398	3.95	16	0.16
September.....	95	0.94	92	0.91	165	1.64	9	0.09
October.....	72	0.71	83	0.83	54	0.54	10	0.10
November.....	67	0.66	110	1.09	14	0.14	7	0.07
December.....	47	0.47	146	1.45	7	0.07	8	0.08
Totals.....	1,008	.....	1,283	.....	1,437	.....	121	.....
Annual death-rates.....	.....	1.00	.....	1.06	.....	1.19	.....	0.10

Table No. 4—Concluded.

*Zymotic Diseases: Deaths and Death Rates per 1000, by Months—1891.*

MONTHS.	TYPHOID.		MIASMATIC.		DIARRHOEAL.		MALARIAL.	
	Deaths.	Rate.	Deaths.	Rate.	Deaths.	Rate.	Deaths.	Rate.
January.....	67	0.61	176	1.60	18	0.15	7	0.06
February .....	61	0.55	195	1.77	26	0.23	9	0.08
March.....	71	0.64	216	1.96	45	0.41	16	0.15
April.....	136	1.23	171	1.55	136	1.23	18	0.16
May.....	408	3.71	170	1.55	66	0.60	22	0.20
June.....	167	1.52	135	1.23	68	0.62	7	0.06
July.....	200	1.82	106	0.96	476	4.32	10	0.09
August.....	182	1.65	128	1.16	416	3.78	14	0.13
September.....	198	1.80	132	1.20	238	2.16	8	0.07
October .....	171	1.55	185	1.68	95	0.86	12	0.11
November.....	150	1.36	205	1.86	28	0.25	10	0.09
December.....	186	1.69	204	1.86	38	0.34	10	0.09
Totals.....	1,997	.....	2,023	.....	1,650	.....	143	.....
Annual death-rates.....	.....	1.51	.....	1.53	.....	1.25	.....	0.11

*Zymotic Diseases: Deaths and Death Rates per 1000, by Months—1892.*

MONTHS.	TYPHOID.		MIASMATIC.		DIARRHOEAL.		MALARIAL.	
	Deaths.	Rate.	Deaths.	Rate.	Deaths.	Rate.	Deaths.	Rate.
January.....	311	2.59	218	1.82	51	0.42	9	0.07
February.....	187	1.56	150	1.25	20	0.17	8	0.07
March .....	76	0.63	174	1.45	14	0.12	9	0.07
April.....	56	0.47	138	1.15	36	0.30	5	0.04
May .....	70	0.58	137	1.15	40	0.33	10	0.08
June.....	55	0.46	98	0.82	114	0.95	16	0.13
July.....	211	1.76	100	0.83	516	4.30	21	0.17
August.....	179	1.49	97	0.80	435	3.62	27	0.22
September.....	138	1.15	93	0.77	204	1.70	13	0.11
October .....	92	0.77	164	1.37	69	0.57	8	0.07
November.....	67	0.56	192	1.60	25	0.21	6	0.05
December.....	47	0.39	243	2.02	17	0.14	7	0.06
Totals.....	1,489	.....	1,804	.....	1,541	.....	139	.....
Annual death-rates.....	.....	1.04	.....	1.26	.....	1.07	.....	0.10

TABLE NO. 5.—*Precipitation Data, Chicago, 1871-1892, inclusive.*

1871—MONTH.	Total rain-fall in inches.	Number of days.	Maximum daily amount in inches.	STORMS.*			
				Date.	Amount of fall in inches.	Duration hours and minutes.	Rate inches per hour.
January.....	4 13	10	1.20	13 14	1.20 1.10	24- 24-	.....
February .....	1.45	6	0.78	.....	.....	.....	.....
March .....	2.66	15	0.71	.....	.....	.....	.....
April.....	3.70	15	2.41	10	2.41	24-	.....
May .....	3.90	9	1.03	25	1.05	24-	.....
June.....	5.56	12	2.57	22 23	2.57 2.13	24-0 0-60	..... 2.13
July .....	2.52	9	1.57	3	1.57	24-	.....
August.....	2.01	8	0.73	.....	.....	.....	.....
September.....	0.74	3	0.53	.....	.....	.....	.....
October .....	1.88	Record broken by fire.	1.41	31	1.41	24-	.....
November .....	3.62	11	1.24	10	1.24	24-	.....
December.....	3.44	10	2.50	23	2.50	24-	.....
Totals .....	35.61	.....	.....	.....	.....	.....	.....

1872—MONTH.	Total rain-fall in inches.	Number of days.	Maximum daily amount in inches.	STORMS.*			
				Date.	Amount of fall in inches.	Duration hours and minutes.	Rate inches per hour.
January.....	0.68	7	0.26	.....	.....	.....	.....
February.....	0.84	.....	0.42	.....	.....	.....	.....
March.....	3.79	9	1.88	7 30	1.15 1.29	24- 24-	.....
April.....	3.03	11	0.71	.....	.....	.....	.....
May .....	3.24	9	0.96	.....	.....	.....	.....
June.....	3.45	10	1.21	.....	.....	.....	.....
July .....	3.09	11	1.14	.....	.....	.....	.....
August.....	2.59	11	0.89	.....	.....	.....	.....
September.....	6.43	12	2.70	28	2.70	24-	.....
October.....	0.65	4	0.45	.....	.....	.....	.....
November.....	1.06	11	0.77	.....	.....	.....	.....
December.....	0.22	10	0.04	.....	.....	.....	.....
Totals.....	29.07	111	.....	.....	.....	.....	.....

\*These columns include all storms whose rate of fall was greater than one inch per hour, and those also the amount of whose fall was greater than one inch in the recorded day, viz.: 11 P. M. to 11 P. M.

Table No. 5—Continued.

1873—MONTH.	Total rain-fall in inches.	Number of days.	Maximum daily amount in inches.	STORMS.*			
				Date.	Amount of fall in inches.	Duration hours and minutes.	Rate inches per hour.
January.....	2.56	14	0.81	.....	.....	.....	.....
February.....	0.47	5	0.24	.....	.....	.....	.....
March.....	0.89	13	0.26	.....	.....	.....	.....
April.....	6.22	17	1.66	6 11	1.03 1.06	21- 21-	.....
May.....	7.20	16	2.82	1 9	2.35 1.90	21- 21-	.....
June.....	1.44	6	0.57	.....	.....	.....	.....
July.....	4.04	15	1.35	4	1.35	21-	.....
August.....	1.58	10	0.58	.....	.....	.....	.....
September.....	3.53	10	1.94	28	1.44	24-	.....
October.....	2.43	10	1.73	.....	.....	.....	.....
November.....	1.61	11	0.54	.....	.....	.....	.....
December.....	4.44	12	1.21	3 11 12	1.12 .99 1.11	24- 21- 21-	.....
Totals.....	36.41	139	.....	.....	.....	.....	.....

1874—MONTH.	Total rain-fall in inches.	Number of days.	Maximum daily amount in inches.	STORMS.*			
				Date.	Amount of fall in inches.	Duration hours and minutes.	Rate inches per hour.
January.....	3.47	14	1.04	.....	.....	.....	.....
February.....	1.51	14	0.57	.....	.....	.....	.....
March.....	2.15	9	1.20	3	1.19	21-	.....
April.....	2.67	9	1.45	.....	.....	.....	.....
May.....	2.08	11	0.64	.....	.....	.....	.....
June.....	3.25	10	1.45	8	1.45	24-	.....
July.....	0.58	7	0.43	.....	.....	.....	.....
August.....	3.15	8	2.19	21	2.00	24-	.....
September.....	3.76	9	1.28	4	1.02	24-	.....
October.....	2.55	10	1.56	28	1.53	24-	.....
November.....	2.83	14	0.79	.....	.....	.....	.....
December.....	0.63	10	0.31	.....	.....	.....	.....
Totals.....	28.63	125	.....	.....	.....	.....	.....

\* These columns include all storms whose rate of fall was greater than one inch per hour, and also those the amount of whose fall was greater than one inch in the recorded day, viz.: 11 P. M. to 11 P. M.

Table No. 5—Continued.

1875—MONTH.	Total rain- fall in inches.	Number of days.	Maximum daily amount in inches.	STORMS.*			
				Date.	Amount of fall in inches.	Duration, hours and minutes.	Rate inches per hour.
January.....	0.96	14	0.58	.....	.....	.....	.....
February .....	1.99	12	0.65	.....	.....	.....	.....
March.....	1.43	16	0.36	.....	.....	.....	.....
April.....	2.32	12	1.03	.....	.....	.....	.....
May .....	3.64	16	1.10	.....	.....	.....	.....
June.....	5.17	15	1.70	1 21	1.11 1.58	24- 21-	.....
July.....	7.18	16	2.29	6 27	1.40 2.22	24- 21-	.....
August.....	3.29	11	1.23	15	1.22	21-	.....
September.....	4.39	11	3.44	9	3.44	24-	.....
October.....	4.32	13	1.49	29	1.19	24-	.....
November .....	0.75	10	0.35	.....	.....	.....	.....
December.....	2.62	13	0.66	.....	.....	.....	.....
Totals.....	38.06	159	.....	.....	.....	.....	.....

1876—MONTH.	Total rain- fall in inches.	Number of days.	Maximum daily amount in inches.	STORMS.*			
				Date.	Amount of fall in inches.	Duration hour- and minutes.	Rate inches per hour.
January.....	3.22	12	1.53	18	1.51	24-	.....
February .....	3.90	11	1.94	9	1.56	24-	.....
March.....	4.04	16	1.67	16	1.64	24-	.....
April.....	2.07	10	1.51	13	1.24	21-	.....
May .....	1.85	15	0.79	.....	.....	.....	.....
June.....	5.96	17	1.87	16	1.87	24-	.....
July .....	3.11	11	1.91	.....	.....	.....	.....
August.....	3.66	8	1.82	24 30	0.88 1.51	0-35 24-	1.50
September.....	3.74	12	1.72	13	1.72	24-	.....
October .....	1.20	9	0.44	.....	.....	.....	.....
November.....	3.25	16	0.93	.....	.....	.....	.....
December.....	0.48	16	0.14	.....	.....	.....	.....
Totals.....	36.48	153	.....	.....	.....	.....	.....

\*These columns include all storms whose rate of fall was greater than one inch per hour, and also those the amount of whose fall was greater than one inch in the recorded day, viz.: 11 P. M. to 11 A. M.

Table No. 5—Continued.

1877—MONTH	Total rain-fall in inches.	Number of days.	Maximum daily amount in inches.	STORMS.*			
				Date.	Amount of fall in inches.	Duration hours and minutes.	Rate inches per hour.
January.....	1.91	9	1.02	.....	.....	.....	.....
February.....	0.06	3	0.06	.....	.....	.....	.....
March.....	5.37	20	0.91	.....	.....	.....	.....
April.....	2.42	15	0.68	.....	.....	.....	.....
May.....	1.81	6	0.73	.....	.....	.....	.....
June.....	6.04	20	2.65	25	2.65	24-	.....
July.....	2.98	10	1.47	2	0.81	0-50	1.01
August.....	3.06	12	1.26	2	1.47	21-	.....
				14	1.14	24-	.....
September.....	2.02	7	1.19	28	1.19	24-	.....
October.....	6.51	15	2.55	19	2.19	24-	.....
November.....	6.08	15	1.66	8	1.66	24-	.....
December.....	2.75	18	1.02	18	1.02	24-	.....
Total.....	41.01	148	.....	.....	.....	.....	.....

1878—MONTH.	Total rain-fall in inches.	Number of days.	Maximum daily amount in inches.	STORMS.*			
				Date.	Amount of fall in inches.	Duration hours and minutes.	Rate inches per hour.
January.....	1.31	18	0.72	.....	.....	.....	.....
February.....	2.12	16	0.76	.....	.....	.....	.....
March.....	4.39	16	1.50	23	1.19	21-	.....
April.....	5.57	14	1.55	23	1.01	21-	.....
				24	1.53	21-	.....
May.....	5.22	14	1.66	28	1.16	24-	.....
June.....	3.02	12	0.87	.....	.....	.....	.....
July.....	6.09	11	4.14	26	4.14	24-	.....
August.....	3.66	15	1.36	18	1.36	24-	.....
				25	1.02	24-	.....
September.....	1.99	10	1.16	25	0.92	0-08	6.90
October.....	5.17	17	1.41	16	1.41	21-	.....
November.....	0.83	11	0.22	.....	.....	.....	.....
December.....	2.58	21	0.69	.....	.....	.....	.....
Totals.....	41.95	175	.....	.....	.....	.....	.....

\*These columns include all storms whose rate of fall was greater than one inch per hour, and also those the amount of whose fall was greater than one inch in the recorded day, viz.: 11 P. M. to 11 P. M.

Table No. 5—Continued.

1879—MONTH.	Total rain-fall in inches.	Number of days.	Maximum daily amount in inches.	STORMS.*			
				Date.	Amount of fall in inches.	Duration, hours and minutes.	Rate in inches per hour.
January.....	0.54	9	0.41	.....	.....	.....	.....
February .....	1.47	17	0.36	.....	.....	.....	.....
March.....	2.37	15	0.87	.....	.....	.....	.....
April.....	1.93	10	1.48	9	1.36	24-	.....
May.....	3.89	10	2.52	25	2.52	24-	.....
June.....	3.18	12	1.02	21	1.02	24-	.....
July.....	5.58	9	3.25	6 7	1.17 2.23	24- 24-	.....
August.....	0.45	7	0.16	.....	.....	.....	.....
September.....	1.18	12	0.40	.....	.....	.....	.....
October.....	2.72	10	1.43	17	1.22	24-	.....
November.....	4.93	12	1.50	28	1.50	24-	.....
December .....	2.47	18	1.10	9	1.10	24-	.....
Total.....	30.71	141	.....	.....	.....	.....	.....

1880—MONTH.	Total rain-fall in inches.	Number of days.	Maximum daily amount in inches.	STORMS.			
				Date.	Amount of fall in inches.	Duration, hours and minutes.	Rate in inches per hour.
January.....	3.53	14	0.95	.....	.....	.....	.....
February .....	2.91	14	1.17	.....	.....	.....	.....
March.....	2.25	13	1.15	27	1.08	24-	.....
April.....	5.20	19	1.65	24	1.65	24-	.....
May.....	4.97	12	1.26	8	1.26	24-	.....
June.....	3.50	17	1.17	14	1.05	24-	.....
July.....	3.07	15	0.84	.....	.....	.....	.....
August.....	4.47	15	1.25	.....	.....	.....	.....
September.....	2.25	18	0.89	.....	.....	.....	.....
October.....	3.19	10	1.91	3	1.30	24-	.....
November .....	0.87	14	0.45	.....	.....	.....	.....
December.....	1.11	20	0.45	.....	.....	.....	.....
Totals.....	37.32	181	.....	.....	.....	.....	.....

\* These columns include all storms whose rate of fall was greater than one inch per hour, and also those the amount of whose fall was greater than one inch in the recorded day, viz.: 11 P. M. to 11 P. M.



Table No. 5—Continued.

1881—MONTH.	Total rain- fall in inches.	Number of days.	Maximum daily amount in inches.	STORMS.*			
				Date.	Amount of fall in inches.	Duration hours and minutes.	Rate inches per hour.
January.....	0.87	16	0.24	.....	.....	.....	.....
February.....	5.98	20	1.31	.....	.....	.....	.....
March.....	2.99	18	1.04	19	1.04	24-	.....
April.....	1.84	15	0.86	.....	.....	.....	.....
May.....	1.85	10	0.68	.....	.....	.....	.....
June.....	5.93	18	2.57	6 7	1.18 1.43	24- 24-	.....
July.....	4.31	10	1.81	21	1.69	24-	.....
August.....	0.54	6	0.30	.....	.....	.....	.....
September.....	4.34	13	1.10	15	1.08	24-	.....
October.....	6.89	17	1.24	14 24	1.15 1.00	24- 24-	.....
November.....	5.97	15	3.35	11	3.18	24-	.....
December.....	2.67	15	1.14	21	1.14	24-	.....
Totals.....	41.18	173	.....	.....	.....	.....	.....

1882—MONTH.	Total rain- fall in inches.	Number of days.	Maximum daily amount in inches.	STORMS.*			
				Date.	Amount of fall in inches.	Duration hours and minutes.	Rate inches per hour.
January.....	1.55	16	0.49	.....	.....	.....	.....
February.....	2.24	13	1.35	28	1.35	24-	.....
March.....	3.43	20	1.43	9	1.43	24-	.....
April.....	6.72	17	1.58	9 26	1.49 1.33	24- 24-	.....
May.....	5.52	19	1.77	6 27	1.20 1.60	24- 24-	.....
June.....	5.71	20	1.92	3 27 30	1.17 0.56 1.55	24- 0-13 24-	..... 2.58
July.....	3.43	14	1.00	.....	.....	.....	.....
August.....	4.96	18	1.69	23	1.65	24-	.....
September.....	0.91	8	0.63	.....	.....	.....	.....
October.....	3.40	12	1.17	8	1.15	24-	.....
November.....	1.48	17	0.45	.....	.....	.....	.....
December.....	1.99	16	0.81	.....	.....	.....	.....
Totals.....	41.34	190	.....	.....	.....	.....	.....

\*These columns include all storms whose rate of fall was greater than one inch per hour, and also those the amount of whose fall was greater than one inch in the recorded day, viz.: 11 P. M. to 11 P. M.

Table No. 5—Continued.

1883—MONTH.	Total rain- fall in inches.	Number of days.	Maximum daily amount in inches.	STORMS.*			
				Date.	Amount of fall in inches.	Duration, hours and minutes.	Rate inches per hour.
January.....	1.74	19	1.60	.....	.....	.....	.....
February .....	4.74	17	1.94	16	1.94	24-	.....
March.....	0.42	15	0.18	5	1.32	24-	.....
April.....	3.72	14	1.38	.....	.....	.....	.....
May .....	7.32	18	2.37	9	2.20	24-	.....
June.....	5.61	14	1.20	5	0.64	0-10	3.84
				12	1.20	24-	
July.....	5.53	12	1.77	4	1.60	24-	.....
				21	1.20	24-	
August.....	1.21	7	1.05	.....	.....	.....	.....
September .....	1.36	8	0.68	.....	.....	.....	.....
October.....	7.36	19	1.94	2	1.33	24-	.....
				25	1.94	24-	
November.....	5.26	10	3.39	5	3.39	24-	.....
December.....	1.59	15	0.52	.....	.....	.....	.....
Totals.....	45.86	168	.....	.....	.....	.....	.....

1884—MONTH.	Total Rainfall in Inches.	Number of days.	Maximum daily amount in inches.	STORMS.*			
				Date.	Amount of fall in inches.	Duration hours and minutes.	Rate inches per hour.
January .....	1.39	14	0.39	.....	.....	.....	.....
February .....	3.27	20	1.13	12	1.13	24-	.....
March.....	5.16	19	3.26	25	3.26	24-	.....
April .....	3.05	14	1.74	15	1.74	24-	.....
May .....	1.53	12	0.68	.....	.....	.....	.....
June.....	2.11	11	0.64	2	0.52	24-	.....
July.....	3.71	12	1.46	.....	.....	.....	.....
August.....	2.50	9	1.27	28	1.27	24-	.....
September.....	2.29	9	1.09	27	1.09	24-	.....
October.....	3.59	13	1.39	8	1.26	24-	.....
November.....	1.80	12	0.87	.....	.....	.....	.....
December.....	4.21	19	0.95	.....	.....	.....	.....
Totals.....	34.61	164	.....	.....	.....	.....	.....

\* These columns include all storms whose rate of fall was greater than one inch per hour, and also those the amount of whose fall was greater than one inch in the recorded day, viz.: 11 P. M. to 11 P. M.

Table No. 5—Continued.

1895—MONTH.	Total rainfall in inches.	No. of days.	Maximum daily amount in inches.	STORMS.*			
				Date.	Amount of fall in inches.	Duration hours and minutes.	Rate inches per hour.
January.....	3.18	12	1.24	.....	.....	.....	.....
February.....	2.01	16	0.99	.....	.....	.....	.....
March.....	0.57	11	0.20	.....	.....	.....	.....
April.....	4.00	18	1.71	17	1.71	24-0	.....
May.....	3.17	14	1.23	29	1.23	24-0	.....
June.....	5.20	13	3.44	3 2	3.44 2.90	24-0 3-15	0.90
July.....	2.44	16	0.83	.....	.....	.....	.....
August.....	11.28	15	6.19	2&3 23 24	6.19 1.92 2.00	24-0 24-0 24-0	.....
September.....	2.97	13	1.65	8	1.65	24-0	.....
October.....	3.87	16	2.22	19	2.22	24-0	.....
November.....	2.33	15	1.17	.....	.....	.....	.....
December.....	3.35	19	1.29	8	1.21	24-	.....
Totals.....	44.37	178	.....	.....	.....	.....	.....

1896—MONTH.	Total in- fall in inches.	Number of days.	Maximum daily amount in inches.	STORMS.*			
				Date.	Amount of fall in inches.	Duration hours and minutes.	Rate inches per hour.
January.....	3.56	22	0.71	.....	.....	.....	.....
February.....	1.51	15	0.53	.....	.....	.....	.....
March.....	1.79	15	0.54	.....	.....	.....	.....
April.....	1.29	14	0.42	.....	.....	.....	.....
May.....	1.00	12	0.52	.....	.....	.....	.....
June.....	0.94	10	0.58	.....	.....	.....	.....
July.....	1.53	9	0.61	.....	.....	.....	.....
August.....	3.38	11	1.30	29	1.10	24-	.....
September.....	6.93	18	2.11	9 19	1.67 1.10	24- 24-	.....
October.....	1.42	8	0.59	.....	.....	.....	.....
November.....	1.66	13	0.74	.....	.....	.....	.....
December.....	1.76	18	0.37	.....	.....	.....	.....
Totals.....	26.77	165	.....	.....	.....	.....	.....

\*These columns include all storms whose rate of fall was greater than one inch per hour, and also those the amount of whose fall was greater than one inch in the recorded day, viz.: 11 P. M. to 11 P. M.

Table No. 5—Continued.

1887—MONTH.	Total rain-fall in inches.	Number of days.	Maximum daily amount in inches.	STORMS.*			
				Date.	Amount of fall in inches.	Duration hours and minutes.	Rate inches per hour.
January.....	3.13	18	1.39	22	1.39	24-	.....
February.....	5.10	19	1.23	8 17	1.10 1.02	24- 24-	..... .....
March.....	0.89	13	0.48	.....	.....	.....	.....
April.....	0.46	12	0.18	.....	.....	.....	.....
May.....	1.38	12	0.49	.....	.....	.....	.....
June.....	1.63	11	0.70	20	.70	0-34	1.24
July.....	1.95	13	0.45	.....	.....	.....	.....
August.....	3.35	13	1.24	14	1.23	24-	.....
September.....	4.03	15	1.33	22	1.00	24-	.....
October.....	2.03	12	0.82	.....	.....	.....	.....
November.....	2.41	7	0.66	.....	.....	.....	.....
December.....	3.67	21	1.04	3	1.04	24-	.....
Totals.....	29.13	166	.....	.....	.....	.....	.....

1888—MONTH.	Total rain-fall in inches.	Number of days.	Maximum daily amount in inches.	STORMS.*			
				Date.	Amount of fall in inches.	Duration hours and minutes.	Rate inches per hour.
January.....	1.56	22	0.51	.....	.....	.....	.....
February.....	1.51	12	0.76	.....	.....	.....	.....
March.....	2.99	18	1.01	.....	.....	.....	.....
April.....	2.13	12	0.90	.....	.....	.....	.....
May.....	6.22	20	2.43	27 28 28	1.14 0.75 1.46	24- 0-19 24-	2.40
June.....	1.66	10	0.97	.....	.....	.....	.....
July.....	3.93	14	1.29	4 3 31	1.02 0.75 1.20	24-0 0-23 24-0	1.98
August.....	2.10	13	1.00	.....	.....	.....	.....
September.....	0.98	7	0.45	.....	.....	.....	.....
October.....	2.95	12	1.31	.....	.....	.....	.....
November.....	2.89	11	1.10	8	1.10	24-0	.....
December.....	1.94	14	0.98	.....	.....	.....	.....
Totals.....	30.86	165	.....	.....	.....	.....	.....

\* These columns include all storms whose rate of fall was greater than one inch per hour, and also those the amount of whose fall was greater than one inch in the recorded day, viz.: 11 P. M. to 11 P. M.

Table No. 5—Continued.

1889—MONTH.	Total rain-fall in inches.	Number of days.	Maximum daily amount in inches.	STORMS.*			
				Date.	Amount of fall in inches.	Duration, hours and minutes.	Rate, inches per hour.
January.....	1.64	13	0.68	.....	.....	.....	.....
February.....	1.31	15	0.44	.....	.....	.....	.....
March.....	1.43	9	0.93	.....	.....	.....	.....
April.....	2.35	13	1.03	.....	.....	.....	.....
May.....	5.38	19	1.42	13	1.32	24-	.....
June.....	2.93	14	0.68	.....	.....	.....	.....
July.....	9.56	12	4.02	19	1.55	0-35	2.66
	.....	.....	.....	27	4.02	3-31	1.13
	.....	.....	.....	18	0.80	0-10	4.80
	.....	.....	.....	14	1.48	21-00	.....
August.....	0.39	8	0.16	.....	.....	.....	.....
September.....	2.75	11	2.08	5	1.14	24-0	.....
October.....	1.82	10	0.82	.....	.....	.....	.....
November.....	3.49	18	1.47	1	1 02	24-0	.....
December.....	1.90	16	0.95	.....	.....	.....	.....
Totals.....	34.95	158	.....	.....	.....	.....	.....

1890—MONTH.	Total rain-fall in inches.	Number of days.	Maximum daily amount in inches.	STORMS.*			
				Date.	Amount of fall in inches.	Duration, hours and minutes.	Rate, inches per hour.
January.....	2.98	16	0.94	.....	.....	.....	.....
February.....	2.42	16	0.53	.....	.....	.....	.....
March.....	2.10	19	0.60	.....	.....	.....	.....
April.....	3.28	15	0.90	.....	.....	.....	.....
May.....	5.13	19	2.60	9	2.60	24-	.....
	.....	.....	.....	24	1.03	24-	.....
June.....	3.25	17	1.03	11	1.01	24-0	.....
July.....	2.57	7	1.31	4	1.04	1-00	1.04
	.....	.....	.....	14	1.00	0-31	1.76
	.....	.....	.....	14	1.31	24-0	.....
August.....	2.58	12	1.47	21	1.16	24-0	.....
September.....	1.39	10	0.98	.....	.....	.....	.....
October.....	4.20	15	1.16	26	1.16	24-	.....
November.....	1.59	12	0.84	.....	.....	.....	.....
December.....	1.25	12	0.47	.....	.....	.....	.....
Totals.....	32.74	174	.....	.....	.....	.....	.....

\* These columns include all storms whose rate of fall was greater than one inch per hour, and also those the amount of whose fall was greater than one inch in the recorded day, viz.: 11 P. M. to 11 P. M.

Table No. 5—Concluded.

1891—MONTH.	Total rain- fall in inches.	Number of days.	Maximum daily amount in inches.	STORMS.*			
				Date.	Amount of fall in inches.	Duration hours and minutes.	Rate, inches per hour.
January.....	1.99	16	1.25	1	1.25	24-0	.....
February.....	1.95	14	.....	.....	.....	.....	.....
March.....	2.13	22	0.58	.....	.....	.....	.....
April.....	3.14	18	1.45	9	1.45	24-0	.....
May.....	2.09	10	0.84	.....	.....	.....	.....
June.....	2.42	14	0.79	.....	.....	.....	.....
July.....	2.47	9	1.28	7	1.26	24-0	.....
August.....	4.52	14	1.92	7 23 & 4	1.10 1.92	0-43 24-0	1.53
September.....	0.32	6	.....	.....	.....	.....	.....
October.....	0.36	7	.....	.....	.....	.....	.....
November.....	3.83	21	0.84	.....	.....	.....	.....
December.....	1.32	14	0.56	.....	.....	.....	.....
Totals.....	26.54	165	.....	.....	.....	.....	.....

1892—MONTH.	Total rain- fall in inches.	NUMBER OF DAYS.		Maximum daily amount in inches.	STORMS.*			
		Including "traces".	"Trace" only.....		Date.	Amount of fall in inches.	Duration hours and minutes.	Rate inches per hour.
January.....	1.99	15	.....	0.57	.....	.....	.....	.....
February.....	1.57	20	.....	0.42	.....	.....	.....	.....
March.....	2.21	16	.....	0.59	.....	.....	.....	.....
April.....	2.17	16	.....	0.70	.....	.....	.....	.....
May.....	6.77	23	.....	1.66	5	1.66	24-	.....
June.....	10.58	28	.....	3.04	18 23	1.80 3.04	21- 24-	.....
July.....	2.23	12	3	0.81	.....	.....	.....	.....
August.....	1.85	8	.....	0.48	.....	.....	.....	.....
September.....	1.34	11	1	0.82	.....	.....	.....	.....
October.....	1.54	7	1	0.67	.....	.....	.....	.....
November.....	2.68	15	3	1.43	.....	.....	.....	.....
December.....	1.63	18	7	0.85	.....	.....	.....	.....
Totals.....	36.56	189	15	.....	.....	.....	.....	.....

\* These columns include all storms whose rate of fall was greater than one inch per hour, and also those the amount of whose fall was greater than one inch in the recorded day, viz.: 11 P. M. to 11 P. M.



TABULATION OF  
(1871-  
AT CHICAGO,

MONTH.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.	1881.
January.....	4.13	0.68	2.56	3.47	0.96	3.22	1.91	1.31	0.54	3.53	0.87
February.....	1.45	0.84	0.47	1.51	1.99	3.90	0.06	2.12	1.47	2.91	5.98
March .....	2.66	3.79	0.89	2.15	1.43	4.04	5.37	4.39	2.37	2.25	2.99
April.....	3.70	3.03	6.22	2.67	2.32	2.07	2.42	5.57	1.93	5.20	1.84
May.....	3.90	3.24	7.20	2.09	3.64	1.85	1.81	5.22	3.89	4.97	1.85
June.....	5.56	3.45	1.44	3.25	5.17	5.96	6.04	3.02	3.18	3.50	5.93
July.....	2.52	3.09	4.04	0.58	7.18	3.11	2.98	6.09	5.58	3.07	4.31
August.....	2.01	2.59	1.58	3.15	3.29	3.66	3.06	3.66	0.45	4.47	0.54
September.....	0.74	6.43	3.53	3.76	4.39	3.74	2.02	1.99	1.18	2.25	4.34
October.....	1.88	0.65	2.43	2.55	4.32	1.20	6.51	5.17	2.72	3.19	6.89
November.....	3.62	1.06	1.61	2.83	0.75	3.25	6.08	0.83	4.93	0.87	5.97
December.....	3.44	0.22	4.44	0.63	2.62	0.48	2.75	2.58	2.47	1.11	2.67
Totals.....	35.61	29.07	36.41	28.63	38.06	36.48	41.01	41.95	30.71	37.32	44.18

NOTE.—The yearly mean of these 22 years, 1871-1892, inclusive, was 35.60 inches, which may be assumed as the normal rainfall. During the first seven years of this period—1871-1877, inclusive,—the yearly mean was 35.04 inches, being a slight deficiency and a stationary lake level; in the seven years, 1878-1884, the yearly mean was 39.43 inches, a marked excess and a rising lake level; in the following seven years, 1885-1891, the mean was 32.18 inches, and a falling lake level. If the periods begin with 1872, the result is substantially the same: 1872-1878, yearly mean, 35.94 inches; 1879-85, yearly mean, 39.77 inches; 1886-1892, yearly mean, 31.20 inches, and a lower lake level than at any previous time for fifty years. It is reasonable now to expect a series of years of increasing rainfall, with a rising lake level.



## MONTHLY RAINFALLS

1892)

ILLINOIS.

1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.	1891.	1892.	Means
1.55	1.74	1.39	3.18	3.56	3.13	1.56	1.64	2.98	1.99	1.99	2.18
2.24	4.74	3.27	2.01	1.51	5.10	1.51	1.31	2.42	1.95	1.57	2.29
3.45	0.42	5.16	0.57	1.79	0.89	2.99	1.43	2.10	2.13	2.21	2.52
6.72	3.72	3.05	4.00	1.29	0.46	2.13	2.35	3.28	3.14	2.17	3.15
5.52	7.32	1.53	3.17	1.00	1.38	6.22	5.38	5.13	2.09	6.77	2.57
5.71	5.61	2.11	5.20	0.94	1.63	1.66	2.93	3.25	2.42	10.58	4.18
3.43	5.53	3.71	2.44	1.53	1.05	3.55	9.56	2.57	2.47	2.23	3.68
4.96	1.21	2.50	11.28	3.38	3.35	2.10	0.39	2.58	4.52	1.85	3.93
0.91	1.36	2.29	2.97	6.93	4.03	0.98	2.75	1.39	0.32	1.34	2.71
3.40	7.36	3.59	3.87	1.42	2.03	2.95	1.82	4.20	0.36	1.54	3.18
1.48	5.26	1.80	2.32	1.66	2.41	2.89	3.49	1.59	3.83	2.68	2.69
1.99	1.59	4.21	3.35	1.76	3.67	1.94	1.90	1.25	1.32	1.63	2.18
41.34	45.86	34.61	44.37	26.77	29.13	30.86	34.95	32.71	26.54	36.56	35.60



COMMENTS AND DEDUCTIONS.

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Any discussion of the sanitary condition of Chicago must take into account the character of its population in connection with its mortality statistics. The general health in relation to preventable diseases may index the sanitary care exercised by the authorities and by the citizens; but the healthfulness of the site will be most directly indicated by those born to the soil.

Not over one-third of the present population is autochthonous, or born on the soil, and one-half has actually come to the city since 1880 or within twelve years. The incoming population is in large proportion of a virile type and of an age when the death rate is at a minimum. The proportion of old people is small and the proportion of children is rapidly increasing as is to be expected from the character and age of the adult population. This of itself promises a large increase of population in the next decade, even though the influx of adults should fall off. If the conditions were every way favorable—a healthful site, needful public works and proper sanitary care—the death rate should be phenomenally low, much lower than it is and very much lower in comparison with older cities. The large ratio of deaths from preventable diseases and especially the death-rate among children, who may be assumed as native to the situation, are not reassuring.

Although the death rate as a whole is not high as compared to many other cities, there is no comfort in this fact after the attending circumstances are considered.

The site of Chicago is the bed of an old bay of Lake Michigan, when the lake stood some thirty feet higher and discharged from the head of the bay, near Summit, down the valley of the Des Plaines and Illinois rivers. The bay was in crescent shape, swinging from Rose Hill on the north southwesterly through Jefferson and Cicero to Riverside, thence sweeping around to the head of the Blue Island ridge and toward the Calumet on the

south. The shore was marked by a beach of sand and gravel, which extends northerly as the west ridge at Evanston and southerly behind Pullman and, with some breaks, sweeps easterly into Indiana. The horns of this crescent are eighteen miles apart and the depth is eight miles. To the north and west the ground rises in a series of clay ridges, between which the streams trend southward, as the North Branch, the Des Plaines and Salt Creek; while to the south are heights of clay which separate the Chicago basin from "the Sag." Generally the outlying clays are unmodified drift, not covered to any considerable depth with soil.

The bed of the old bay, however, is a plain composed of a softer and less homogeneous clay, and much of its area was less than ten feet above the present lake level, while that bordering the Chicago river and branches was practically at high water, and generally was covered with a considerable depth of mucky soil. In front of the crescent is a shore strip from one to three miles wide, the clay lying at the lake level or below and covered with sandy and peaty soil, old sand-pits and wind-blown ridges from the modern lake. Extending from the shore inland opposite the middle of the crescent and about the river and branches is the site of the actual city. Some ninety per cent. of the population is on an area of 64 square miles, included within a radius of six miles.

The street grade of the city is established at 14 feet above the low lake level of 1847, and a large proportion of the central and most populous area has been raised to this level. The process is still going on and up to a recent date, almost anything was deemed suitable for filling. To the west and south of Jackson Park are many miles of low ground, scarcely above high lake, occasionally flooded from land water, many feet in depth of porous soil, which it is proposed to render more habitable by pumping the ground water down below the lake level.

It will be perceived, therefore, that much of this densely inhabited area is over a porous stratum of mucky soil, fine sand and miscellaneous filling, varying in depth from five to twenty feet. The growth to the northwest, west and southwest is over territory more favorable, while to the south the conditions are much worse. Near the shore to the north, in Lake View, the porous stratum is of considerable depth.

To the extent that this area is of considerable depth and the surface unprotected, the conditions are favorable to soil saturation by communal filth, with all the sanitary ills attendant thereon. These conditions are characteristic of a large proportion of the populous area. The sewers are necessarily of low grade over the central area and deposits occur in the mains, cleansed only by storm flushing or occasionally by the city sewer department.

The river system—originally stagnant bayous flushed only by rain or melting snow—has been developed into a harbor, consisting of the main channel and slips, which, with a length of over twenty-four miles meander through the populous area. This harbor is the cess-pool for nearly all the sewage of the city, and is without circulation, except by artificial means or when flood waters sweep its contents lakeward.

The contribution to the sewers from the public water supply is 12,000 to 13,000 feet per minute and to the North Branch from the conduit about the same, or an aggregate of 25,000 to 30,000 cubic feet per minute, so that the canal pumping station must be kept in efficient operation to even take care of what comes to the river in dry weather when there is no land water, and to prevent the contents from reaching the lake in its frequent and irregular oscillations. It is apparent that the sewage is so large a proportion of the volume pumped at Bridgeport that the dilution is without significance, and that the circulation largely substitutes new sewage rather than a supply of lake water. It is also apparent that the pumps may fail even to remove the volume contributed by the water supply and the Fullerton conduit, and at their best they are insufficient to cope with any considerable additional volume from rain or melting snow.

The following memorandum in regard to the volume pumped from January 1, 1887, to September 30, 1892, is furnished by the Engineering Department of the Sanitary District. Since October, 1892, the volume has been much less—the monthly readings showing an average of not more than 26,000 cubic feet per minute.

*Volume Pumped into Canal at Bridgeport.*

Year.	Month.	Feet per minute.
1887.	January 1-31 .....	48,000 to 58,000
	February 1 to March 20—no pumping except six days in February and five days in March.....	35,000 to 40,000
	March 21 to July 9, average.....	46,000
	July 10 to October 10 .....	46,000 to 52,000
	October 10 to December 31 .....	38,000 to 43,000
1888.	January .....	38,000 to 43,900
	February 1 to 25 .....	31,000 to 36,000
	February 26 to March 23 .....	40,000 to 50,000
	March 24 to April 30.....	30,000 to 36,000
	May 1 to June 14, average.....	40,000
	June 15 to September 30, average .....	47,000
	October and November .....	37,000 to 40,000
	December.....	31,000 to 36,000
	Except three days in March, seven days in May and four days in May and June, when the canal carried by gravity, from.....	18,000 to 22,000
1889.	January, February, March, April and May .....	34,000 to 37,000
	June.....	25,000 to 32,000
	July 1 to 19, average.....	40,000
	July 20 to 31.....	44,000 to 50,000
	August, September and October.....	42,000 to 46,000
	November and December .....	33,000 to 36,600
	Except one week in July and August, with no pumping.	
1890.	January 1 to February 25; no pumping. Canal carrying by gravity	12,000 to 16,000
	February 26 to March 11.....	30,000 to 44,000
	March 12 to December 8 .....	45,000 to 53,000
	December 9 to 16 .....	43,000 to 45,000
	December 17 to 31 .....	36,000 to 40,000
1891.	January, February, March and April.....	25,000 to 35,000
	Except one week in January and two in April of 40,000 and upward, due in part to floods—	
	May, June, July, August .....	40,000 to 50,000
	September, average .....	36,000
	October, average.....	39,000
	November and December, average .....	33,000 to 34,000
	Except no pumping for one week in July.....	25,000
1892.	January, February, March .....	32,000 to 37,000
	April .....	25,000 to 30,000
	Except one week above 40,000.	
	May and June .....	40,000 to 43,000
	Except for flood interruptions.	
	July, August and September, general average.....	45,000

Of the total population of 1,438,000 it is estimated that 1,194,500 sewer directly to the river system, 195,500 directly to the lake along the city front and 58,000 are outside the sewerage area. Many industries characteristic of Chicago are enormous producers of organic waste, as stock-yards, rendering houses, distilleries, breweries, glucose works, etc. From chemical analysis and other data, it is inferred that the total sewage product is equivalent to an ordinary city of three million people, judging by Eastern and foreign standards. Nearly all these special industries are adjacent to the river system, so that the proportion of filth tributary thereto is larger than is indicated by the above figures as to population.

The North Branch, between Fullerton avenue and its junction with the main river, some 4.8 miles, including the Ogden canal, receives the sewage of a population of about 345,500 and that of many special industries. Circulation is produced by means of the Fullerton ave. conduit through which is introduced from 14,000 to 16,000 cubic feet per minute of lake water, thus changing its contents in about eighty hours and sending the same to the junction with the main river, there to join the flow drawn through the main river and South Branch to the canal by the pumping station at Bridgeport.

The main river and South Branch extend from the Lake to Bridgeport, 5.3 miles with 4.2 miles of adjacent slips, and the population directly tributary is about 577,500 with fewer special industries than on the North Branch.

The nominal capacity of the canal pumping station is 60,000 cubic feet per minute. In the last five years it has exceeded 50,000 feet for a few months only, and has generally ranged from 35,000 to 45,000 feet, though for several months of the past year, the volume did not exceed 30,000 to 35,000 feet per minute. There have been several interruptions for repairs and changes of weeks and months duration, with the canal only taking a gravity flow, which in the last three years of extraordinary low lake has not exceeded 10,000 to 15,000 cubic feet per minute. If the station was operated continuously at its normal capacity, it would change the contents of the main river and South Branch every 24 hours.

There are tributary to the North Branch above Fullerton ave., and to the west and south forks of the South Branch a population of about 271,500 with an enormous development of special industries adjacent to the South fork. The areas, aggregating some 9.5 miles of channel and slip excavated for harbor purposes, are without circulation.

The large sewage product which reaches the uncirculated areas in dry weather is practically spent in those parts of the river system. This is fully evidenced by the phenomenal ebullition of gases and the enormous deposits of sludge, more largely from the decomposing solution than by direct sedimentation of solids. In the areas circulated the sewage is much spent in warm weather and the ebullition of gases and deposits of sludge are only less characteristic. Indeed, this must be apparent, considering the known rapidity with which certain constituents of sewage break up with a favoring temperature. The chemical analyses made at Bridgeport by the STATE BOARD OF HEALTH are confirmatory of the advanced stage of decomposition and would seem to indicate that, in some seasons of the year, the undecomposed organic product going into the canal is but 25 to 30 per cent of the total sewage production of the city, the remainder being dissipated as gases or thrown down as sludge and going lakeward. A thorough examination of the river system does not render this estimate improbable.

In flood time all sewage goes to the lake and periodical freshets also remove the sludge accumulations, except from the quietest areas. It is a significant fact that one of the large sewers of Chicago, serving a district but partly paved, shows a higher proportion of organic matter when flushed by heavy rain than in the dry-weather flow. What the result would be with a storm continuing for two or three days, or with extraordinary precipitation, or on a different type of district, data have not been obtained to show. But when the city is taking a rain-bath—washing down roofs, cleansing streets, flushing catch basins and sewers and leaching out all the noisome accumulations of filth while drenching areas and back lots—it must be concluded that flood waters from the urban areas are highly charged. The condition in flood time is not so patent owing to less time for offensive decomposition, but even in the recent extraordinary



June, 1892, freshet, when 700,000 cubic feet per minute was going out of the Chicago river, the presence of sewage was sufficiently evident to eye and nose.

No more than an assumption can be made as to the ultimate destination of Chicago sewage, but considering all the conditions and circumstances throughout the year, (and the data are far from conclusive) it may be inferred that the equivalent of one-third of the total amount of undecomposed sewage product goes out by the canal, one-third finds its way to the lake and the other third is dissipated as gases of decomposition throughout the atmosphere of the city. Any change in these figures is likely to decrease the proportion lakeward and increase that spent in polluting the city atmosphere.

The public water supply of Chicago is taken from Lake Michigan and the records of the STATE BOARD OF HEALTH show that, except for some hardness, it is normally an unobjectionable water. It is, therefore, only as it is affected by pollution that it may be considered as an agency conducive to zymotic disease.

Referring to Map No. 8 the main arteries of the water supply are shown: The Lake View intake at the north opposite the 25th ward; the shore inlet, opposite the 24th ward; the two-mile tunnel, also opposite the 24th ward; the Hyde Park tunnel opposite the 3rd ward and near Jackson Park; the four-mile tunnel opposite the 1st ward.

The water obtained at the Lake View intake supplies in general the region north of Fullerton or Lincoln Park, as indicated by the size and arrangement of the water pipes. Until during the summer of 1892, the water was taken from the lake at a point about 2,000 feet from the shore line, and was admitted through iron pipes on the bottom of the lake. Since that time it has been admitted to a tunnel at a point about one mile from the shore. This tunnel is now being extended and when completed the supply will be taken from a point two miles from shore. The 2,000 ft. point is the only one pertinent here, except for the latter part of 1892.

The shore inlet has at times been considered a questionable source of water supply. It has been in general use during the whole period covered by this investigation, being out of service but a short time. During 1890 and 1891 the water was taken

from a point about 1,500 feet from shore during 1892 from a point on the break-water about three-quarters of a mile from shore. Both points of intake are about one mile north of the mouth of the Chicago river. The percentage of the total supply taken from this inlet is not known. The region supplied with the water taken from this inlet is, of course, a matter of great interest. It cannot be discussed separately from the supply by the two-mile tunnel, but will be considered in connection with the discussion of the distribution of the water supply.

The two-mile tunnel takes water from a point on the lake two miles from shore and from the mouth of the Chicago river, known generally as the "two-mile crib." At this point two water-supply tunnels originate, one five (5) feet and the other seven (7) feet in internal diameter. Both reach the shore at Chicago avenue close to the termination of the Shore Inlet. The 5-ft. tunnel terminates here, but the 7-ft. tunnel continues across the city, as shown on the map, and terminates at the pumping station at Ashland avenue and Twenty-second street. On its course it is tapped by the pumping station at Des Plaines and Harrison streets. In general, the water from the two-mile tunnel, combined with the shore inlet water, supplies all of the region between Fullerton avenue on the north and Thirty-ninth street on the south, as indicated by the size and arrangement of water-pipes.

The Hyde Park tunnel water supply is obtained from a point about 6,000 feet from shore and about three miles from the mouth of the Calumet river. The region generally supplied therefrom is that part of the city south of Thirty-ninth street.

The four-mile tunnel is not discussed in this connection, since it was not a factor during the period under consideration.

The water supply has been distributed from five places:

1. Lake View pumping station, supplying the region north of Fullerton avenue. Particular attention is called to this fact in connection with the distribution of death rate in this region, account being taken of the fact that the water was drawn from a point only 2,000 feet from the shore most of the time. The death rate from typhoid fever is especially high in the region thus supplied.

2. North Side pumping station, located at Chicago avenue on the lake shore, and supplying the region in which it is central, and south of Fullerton avenue. Diagram No. 1 shows on an enlarged scale the arrangement of water intakes and distributing pipes at this station. It shows that the Shore inlet connects quite directly with the pumping engines on Pearson street. It is quite apparent also that the 7-ft. tunnel to the two-mile crib connects directly with the West side pumping station. It shows, too, that both these sources of supply connect indirectly with the engines facing Tower place, and that the 5-ft. tunnel to the two-mile crib connects directly therewith. It is evident, further, that the Shore inlet water must be mainly distributed from this pumping station, diluted somewhat by water from the 5-ft. tunnel. Further, it is hardly possible that any of the Shore inlet water goes toward the West side. It must be concluded, then, that this pumping station distributed the Shore inlet water. It remains to fix the boundaries of the region this supplied.

In the winter of 1886-87, Engineer Thomas T. Johnston, to whom the Secretary is indebted for the information here given, directed a pressure survey of the water-supply system of the city between Fullerton avenue and 39th street. The results of this survey demonstrated that this pumping station at that time supplied the region south of Fullerton avenue and east of the North branch of the Chicago river; also to some extent the business district just south of the main river, but none of the region west of the North branch. Six months later the pumps facing Pearson street, adding from 20 to 30 per cent. to the water supply, were put in action.\* The additional water supply thus pumped went mainly through pipes leading directly to this region just west of the North branch. It follows then that the region supplied from this station embraced the area east of the river covered by the 20th, 21st, 22nd, 23d and 24th wards, and in addition all or large parts of the 14th, 15th, 16th and 17th wards. No changes or additions have been made to the pumping plants of the city that could materially affect this distribution of the supply.

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\* Mr. Johnston was at that time and subsequently connected with this pumping station and thus had the fullest opportunity for observation.

The area thus defined and supplied is that in which there has been an excess of deaths due to typhoid fever.

3. Des Plaines street pumping station—located as shown on the map, and which had only one pump in operation, supplying a region central to itself, but of no great area. The exact area is immaterial, for the same water is supplied from the pumping station next to be described, and the combined area supplied can be quite definitely defined.

4. West Side pumping station—located at Ashland avenue and Twenty-second street. In conjunction with the Des Plaines street pumping station, it has distributed all the water coming through the 7-foot tunnel from the two-mile crib, shown on Diagram No. 1. All this water is, nearly to a certainty, derived from the two-mile tunnel, and this water supplies all the region between Thirty-ninth and Fullerton avenue, except the region supplied from the North Side pumping station. It is possible, too, that some small quantity of this water has gone south of Thirty-ninth street.

5. Hyde Park pumping station—located on the lake shore just below Jackson Park. The source of supply is evident on the map, likewise the area supplied, which is south of Thirty-ninth street. As already stated, it may be that an immaterial quantity of water crosses Thirty-ninth street towards the south.

It is a patent fact that the water supply of Chicago is at times badly polluted and is at all times regarded with suspicion. The general nature of the pollution is well understood and is sufficiently indicated in the preceding descriptions of the sewage and sewerage of the city, and of the sources and distribution of the water supply.

But there are other factors than an impure water supply in the abnormally high death rate of Chicago. To air pollution due to noxious emanations from decomposing stagnant sewage there must be added both air and soil pollution from the enormous industrial filth producers, acting irresponsibly and without proper police control; from stables for cattle and horses not properly constructed, nor sewered nor cared for; from garbage, offal and refuse accumulated in alleys and upon premises—too frequently in the poorer wards; from surface privies without adequate sewer connections; from lots and areas below the street

level, with houses built over filthy pools or on ground saturated after every rainfall; from uncleaned, unpaved, unditched streets and alleys; from improper street and lot filling; from unsewered and more or less densely-populated areas and from many similar sources.

Some of these conditions are within the control of the private citizen and individual householder, but all are directly within the scope and purview of the municipal authorities whose paramount duty is the protection of the public health. These should exercise fully the police power in control of the great filth producers and in securing rigid sanitary conditions about premises and establishments, including efficient plumbing and sewer connections.

They should clean the city and keep it clean and stop the perpetual tearing up of streets and excavations for buildings in the hot season.

They should operate the Bridgeport pumping station to its full capacity and increase and maintain the same at the full capacity of the canal, or not less than 80,000 cubic feet per minute, so as to circulate the river more freely and to keep its contents from the lake.

They should extend the pavements and adopt more generally a style of construction such as will shed water quickly and prevent saturation of the permeable filling beneath; remove porous material from areas subject to filth saturation; fill lots to grade with suitable material and stop burying mucky soil underneath; make the ditches efficient in the sparsely settled or unsewered districts and drain out all bogs and ponds.

They should push tunnel extensions so as to bring a purer off-shore water supply into active service and copious use.

They should adopt some means for circulating the South fork, however primitive and inefficient it may prove.

Finally they may take the Sanitary Exhibit of the ILLINOIS STATE BOARD OF HEALTH as an index of the conditions which cry out for remedy—as a graphic presentation of the chief causes of undue loss of life and coincident impairment of the working force and value of the population of the World's Fair city.

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